Gleanings in Bee Culture

Established 1873

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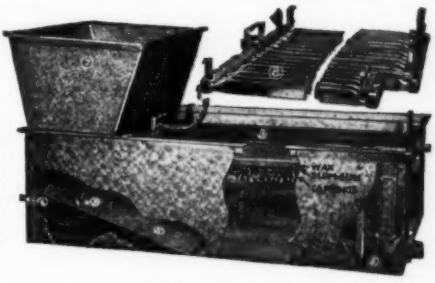

Warren A. Munro in Ontario writes: "We are very enthusiastic over the Brand Melter and money could not buy the one we have if we could not get another one. The Melter has lots of capacity for two men uncapping as we haven't been able to get the Hopper full of cappings yet. We have been extracting 6000 to 7000 of honey per 9-hour day."

(Senior Size Used)

A. G. Woodman Co. Ontario, Canada, November 12th, 1938
Grand Rapids, Mich.
Dear Sirs:

Your letter of Nov. 7th received. I take Gleanings but I hadn't taken any notice of the article referred to regarding the capping melter spoiling the honey.

I don't think I have spoiled any of my large 1938 crop of honey with the Brand Melter. In fact, I am proud of the quality in spite of the fact the capping melter honey mixed with the extractor honey continuously as we extracted.

I shipped two carloads of this mixed honey to England and the government inspector when inspecting it found it to be a distinct shade whiter than the grade water white as according to the dominion honey classifier.

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If I can get some sample mailing jars I will send you and Roots' samples of my honey and you will see yourselves how the Brand Melter hasn't spoiled my honey crop.

Yours truly,
Warren A. Munro

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Manufacturers of Bee Supplies.

The Monthly Honey Market

U. S. GOVERNMENT REPORT

Information from Producing Areas (first half of November).

California Points: Southern California—The weather has been mild to cold, with heavy frosts reported in many localities. Rainfall has been negligible. Beekeepers have found it necessary to feed some colonies as much honey was consumed recently in brood-rearing, but they generally have sufficient young bees. Occasional mustard, dandelions and pepper trees are about all that remain for bees to work on. Demand for honey has been light to moderate. Domestic trading has been considerably lighter than normal but export sales were slightly better than a year ago. Offerings by beekeepers have been ample to meet immediate demand and prices have held about steady. Sales by beekeepers in ton lots or more at Southern California delivery points reported about as follows, per lb.: Orange, Extra White to Water White 5¼-5½c, some 5¾c, White 5-5¼c; Sage-Buckwheat, Light Amber: to Extra Light Amber 3¾-4¼c; Texas Light Amber to White Sage 4½-5c.

Imperial Valley—Bees are approaching winter in good condition. Some colonies are still being moved from fields that were dusted with poison. Sales reported, Light Amber to Extra Light Amber Alfalfa $4.25-4.40 per case of 120 pounds, including several carload lots at $4.40 per case, f.o.b.

Central California—Cooler weather has prevailed, with heavy frost reported in many localities, but light rainfall. Due to the late flow from cotton, bluecurl and spikeweed, the condition of bees is generally better than normal with respect to stores of honey and pollen. More rain will soon be needed to start the growth of early weeds. Bees are working lightly on eucalyptus and various shrubs. Buying of honey by the wholesale trade is expected to be light for some weeks as dealers are reported well stocked. Most beekeepers are said to have liberal supplies of honey but they are not being offered as freely as during the past several months. Sales by beekeepers in ton lots or more at Central California delivery points, per lb.: Light Amber to Extra Light Amber Cotton-Alfalfa 3¾-4c; Light Amber Mixed Flowers 3¼-3½c, 1 car 3¾c, and some sales 3c net with cans returned; White Cotton 3½c. Light Amber to Extra Light Amber Alfalfa $4.10-4.40 per case of 120 lbs. delivered Los Angeles; $4.10-4.20 per case f.o.b. San Joaquin Valley points.

Northern California—Rain has fallen in the upper portion of this area but little in the Sacramento Valley. The weather has been cooler, with heavy frosts reported. Bees are going into winter in good condition with ample stores, as many beekeepers did not fully extract and some have done no extracting due to the low price of honey. Nectar-bearing plants are about over though blue curl and star thistle are yielding lightly. The market has been steady with a better feeling prevailing. Most sales have been in relatively small lots. Sales by beekeepers in ton lots or more at Northern California delivery points: Extra Light Amber to White Thistle 4¾-5c, some Extra Light Amber 3½-4½c; Light Amber 3½-3¾c; Light Amber Mixed Flowers 3¼-3½c; Amber Fixed Flowers 3-3½c.

Little beeswax has been sold during this period. The market has been dull and barely steady, with beekeepers receiving 16-18c per lb. at Central and Northern California delivery points.

Pacific Northwest: West of Cascades—Temperatures have been below normal, with freezes reported over the entire area and some damage to growing vegetation. Considerable snow reported in the higher coastal areas. Bees are entering winter in average condition with normal stores of pollen though in some sections stores of honey are light. Pollen has been coming in from fall dandelions and bees have also been working on mustard. The alsike acreage may be short in the Willamette Valley due to dry weather after seeding and much replacement with peas, but the acreage of vetch is normal. The market is dull. White to Water White Fireweed has brought beekeepers 5-5½c per lb., with many beekeepers reported holding for 5½-6c at shipping point. The beeswax market is unchanged, with dealers reported paying 20-21c per lb. delivered Portland.

East of Cascades—The weather has been cold and stormy, with as much as three feet of snow reported east of the Cascades, but this snow cover has lessened during the past few days as a result of heavy rains. Bees have been kept in the hives much of the time. Sales of honey have been light. White Sweet-Clover-Alfalfa has sold recently at 4¾-5½c per lb.; ton lots Wild Buckwheat-Alfalfa reported sold 7½c per lb. Yellow beeswax, 21c per lb.

Intermountain Region—Honey sales have been fairly good locally in small pails but the usual large lot shipments to eastern bottlers have not yet materialized to any extent because of low prices still being paid for eastern honey. Some shipments in sizeable quantities have been made to the Pacific Coast and also to points in the Plains States. Occasional beekeepers are accepting low prices, but many are holding in the hope of a higher market later. 1 carlot sale reported White extracted at 5c; l.c.l. sales of White to Water White Sweet-clover-Alfalfa have recently been reported at 5-5½c per lb., some White 4 1/6-4¾c per lb.; 60's 5½-6c per lb., few higher, small pails 6-9c; few sales Extra Light Amber, ton lots or more 4-4½c per lb. Few sales No. 1 White comb $3.25 per case. The beeswax market is weak, with sales reported of light-colored wax at 16-17c per lb. cash, 18-19c in trade, occasional sales higher. Details by States follow:

Colorado—Temperatures have been low during much of the period, with snow early in the period, but bees were generally well packed or placed in cellars for winter with adequate stores. Many beekeepers found it necessary to feed but in most yards the slow fall flow made more late stores than had been anticipated.

Wyoming—Bees have gone into winter in unusually good condition as a result of the late fall flow. Snow has already fallen over much of the State except the northeast corner.

Montana—Eastern Montana has experienced some snowfall and in the western part of the State both rain and snow have been reported. Bees are generally packed and in condition for winter, but some beekeepers are delaying placing their bees in the cellar.

Idaho—Unusually stormy weather has been reported with considerable wind, rain and snow, which was heavy in the higher elevations. Due to this stormy weather bees have not been placed in winter packs as rapidly as desired and many beekeepers are just beginning to pack.

SUMMARY—Toward the close of the period cold weather was general over much of the country, with below-freezing temperatures re-

ported from Southern California and South Texas and with temperatures between 30° and 40° reported earlier in the month in the Southeast. Previously, however, the eastern portion of the country had experienced much milder temperatures than usual, enabling bees to fly and gather nectar from late asters and other plants, and even in the western part of the country temperatures were generally above normal in October. Wide variations in rainfall reported, and in portions of the East and South the drouth has reached proportions that are serious for nectar-bearing plants. Drouth was relieved in portions of the Clover Belt and the Plains and Mountain States by snow or snow and rain together. The late fall flow, causing bees to fly more than usual, depleted winter stores abnormally and made feeding necessary in some cases where beekeepers had not expected to feed. Colonies generally have good clusters of young bees for winter. The condition of next year's honey plants will depend in many areas upon the amount of moisture that will fall before cold weather. This is especially true throughout much of the Clover Belt. The price situation shows little change. Shipments of large lots of honey have slowed down somewhat, with many large buyers of honey temporarily stocked up. Distress lots of honey are heard of less frequently in the Clover Belt. There appears to be a slight upward market trend in this area which is not in evidence in the Mountain States, where large lot shipments to the East have been curbed because of the low prices prevailing for local honey in the latter section. Sales locally are reported good in the West, however, as well as in the East, and there are encouraging indications that more beekeepers are gradually endeavoring to find their own markets near home either among retail grocers or by direct sales to the consumer, instead of depending solely upon wholesale buyers at a distance.

Monthly Report of Honey Producers

Early in November we sent the following questions to honey producers: 1. What per cent of the honey produced in your locality has already left the hands of the producers? Give answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots (carload or less) in your locality during the past month for (a) extracted honey, per pound? (b) comb honey, Fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. What is the conditions of colonies for winter in your locality compared with normal, considering the number and age of bees and the supply of stores? Give answer in per cent. 7. How does the number of colonies to be wintered in your locality compare with that of last year? Give answer in per cent. 8. What is the present condition of honey plants in your locality as compared with the average? Give answer in per cent. The answers received are tabulated as follows:

State.	Name.	Pct. sold.	Large lots. Ex.	Large lots. Comb.	To grocers. Ex.	To grocers. Comb.	To consumers. Ex.	To consumers. Comb.	Movement.	Cond. of col.	Pct. col. win.	Cond. honey plants.
SC-Ala.	(J. M. Cutts)	100			.55		.65		Fair	90	105	80
S-Ala.	(J. Clay Dickman)	50			.45		.60		Fair	80	90	60
B. C.	(A. W. Finlay)		.09½		.70		.90		Slow	100	100	100
C-Calif.	(L. L. Andrews)	20	.05				.50	.15	Slow	95	100	90
C-Calif.	(Davis Bros.)	40							Slow	100	100	100
SE-Colo.	(Otis E. Adcock)	10	.05		.40		.50		Slow	100	100	100
E-Conn.	(Allen Latham)	10			.75		1.00	.30	Fair	70	100	100
S-Fla.	(C. C. Cook)	50	.05		.40		.55		Slow	100	125	100
C-Fla.	(Harry Hewitt)	50			.38		.49		Fair	100	100	100
SE-Ga.	(J. J. Wilder)	60	.05½		.50		.65		Fair	100	115	100
S-Ills.	(Carl E. Killion)	50	.06	2.50	.55	3.25	.65	.15	Fair	150	100	80
NC-Ind.	(T. C. Johnson)	25			.55	3.50	.65	.20	Fair	100	100	90
NW-Ind.	(E. S. Miller)	10			.50	3.25	.65	.18	Fair	100	100	125
N-Maine	(O. B. Griffin)	50				4.80	1.25	.30	Fair	90	110	100
C-Md.	(S. G. Crocker)	40			.60	4.00	.75	.25	Slow	100	100	125
N-Mich.	(Ira D. Bartlett)	50	.05½	3.00	.40	3.60	.55	.20	Fair			100
S-Mich.	(Floyd Markham)	25	.06⅔		.50	3.00	.75	.20	Fair	100	100	100
C-Mich.	(E. D. Townsend)	50	.06						Fair	100	90	100
E-Minn.	(Floyd W. Ray)	50	.05	3.00	.40	3.50	.49	.20		100	100	100
W-Minn.	(B. L. Morehouse)	30			.45	3.00	.60		Fair	110	105	90
W-Nev.	(Mrs. E. G. Norton)	0							Slow	90	70	50
W-Nev.	(Geo. G. Schweis)	100	.05¾	3.25			.45	.20	Fair	100	100	100
W-N. M.	(C. A. Baltzley)	75	.06			3.60	.75	.25	Fair	100	100	100
NW-N. Y.	(Geo. B. Howe)				.50	3.50	.60	.20	Fair	90	125	100
C-N. Y.	(F. W. Lesser)	15	.07	3.25	.45	4.00			Fair	100	100	100
NW-N.C.	(C.S. Baumgarner)	100			.70		.85	.25	Slow	90	90	100
SE-N. C.	(W. J. Martin)	50	.06		.60		.80	.20	Fair	90	100	100
E-N. D.	(M. W. Cousineau)	20	.05	3.00	.48	2.50	.51		Slow	100	100	80
C-Ohio	(R. D. Hiatt)	40	.06½		.50	3.50	.65	.19	Slow	110	100	100
NC-Okla.	(C. F. Stiles)	60			.45		.65	.18	Fair	90	100	90
W-Ore.	(H. A. Scullen)	25			.38		.48		Slow	100	100	100
C-Pa.	(Harry Beaver)	2			.50	3.50	.60	.17	Fair	100	100	
SE-Pa.	(D. C. Gilham)	30			.70	4.25	1.00	.25	Fair	100	92	100
SE-S. D.	(J. F. Norgren)	20			.45	3.50	.55	.18	Fair	110	120	90
C-Tenn.	(J. M. Buchanan)	75					.75	.20	Fair	100	90	100
C-Texas	(T. A. Bowden)	50			.45		.55		Fair	90	100	50
S-Texas	(J. N. Mayes)	95								90	80	80
S-Texas	(H. B. Parks)	90	.05		.48		.55		Fair	95	100	95
N-Utah	(W. H. Hendricks)	15			.42		.55		Fair	100	100	100
W-Vt.	(Phillip Crane)	85		3.88		4.25	.75	.25	Fair	90	100	90
SC-Wash.	(Chas. Higgins)	40	.06				.49		Fair	100	100	100
N-W. Va.	(W. C. Griffith)	75					.50	.19	Slow	100	75	50
S-Wisc.	(James Gwin)	40	.07		.47		.60	.18	Fair	80	90	100
N-Wyo.	(Earl C. Reed)	30			.45		.55		Fair	100	90	75

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Send us a list of your 1939 requirements for special quotations, or, if you find it convenient, call at our office and we will be glad to give you the advantage of many years of experience in helping you plan for the proper equipment. WE CAN SAVE YOU MONEY. At Syracuse you get Root goods at Factory prices.

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- To assure you that we shall continually strive to be at your service, and cooperate with you to fill the New Year with largest measures of Happiness, Prosperity, and Success.

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"Hercules" Wired ..	7	.29	.25	.23	.19	.17
Medium Brood Plain .	7	.23	.19	.14	.11	.10
Medium Brood Wired.	7	.28	.24	.22	.18	.17
Light Brood 4½x16½"	16	.27	.25	.23	.17	.16
Thin Surplus	28	.28	.25	.24	.19	.18

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KIND OF FRAME OR SECTION	One piece bottom bar Standard	Split bottom bar frame size
Hoffman size	8 x16¾	8 9/16x16¾
Jumbo size	10 x16¾	.....
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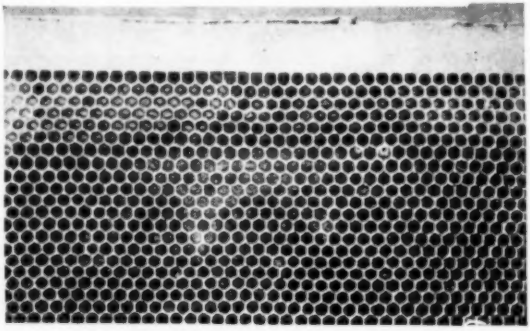

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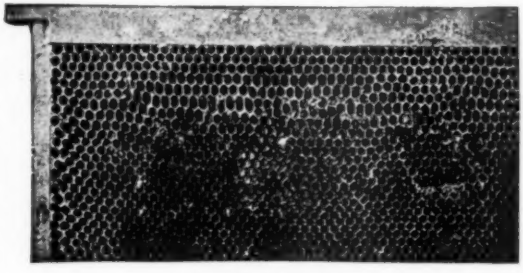

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L. R. Stewart, Indiana.

"In my opinion Dadant's Crimp-wired Foundation is the cheapest to use. When culling combs I find that few ever have to be discarded when built from Dadant's Crimp-wired Foundation, and those because of unavoidable damage or accident."

Gordon Bell, Minnesota.

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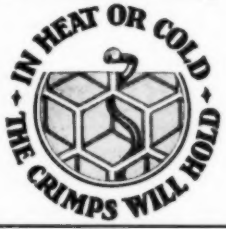
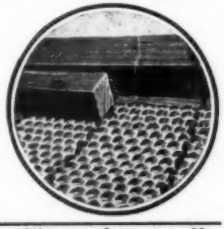




Beeswax Wanted: We buy at all times. Send a card, stating quantity you have to offer

Vol. 66
No. 12

Gleanings in Bee Culture

December
1938

Merry Christmas, Everybody!

Mrs. Benj. Nielsen

Say It with Delectable

Honey Treats

Mr. Santa goes modern! Cunning favors in red and white for the Christmas dinner table.

Breathes there a homemaker who can resist the temptation to make holiday goodies? She may stanchly resolve to buy her supplies from the innumerable fruit cakes, candies, and cookies so widely advertised and attractively displayed, so that she may have time for other activities. But as the season advances resolutions begin to "bend" and she decides she must have a few of the old standbys and try a new trick or two. Things just wouldn't be complete without a few homemade goodies. So out come the mixing bowls and spices and down comes the honey jar. And before long, all kinds of tempting aromas emanate from the cook's domain. She'll be rushed as usual, complain a bit, and secretly enjoy every bit of it!

At our house we never cease to marvel at and appreciate the possibilities of honey. But at this season of the year we doubly appreciate the good qualities of nature's finest sweet. All-honey sweetened fruit cakes possess unexcelled flavor. Well in advance of the time needed, we make our cookies, pop them into cooky jars, knowing their honey content will keep them fresh to the last crumb. When used in small quantities in candy-making our candies are creamy in texture. When it is possible to use larger amounts, with satisfactory results, creaminess and exceptionally fine flavor are our rewards. Frequently, it takes no little experimenting to determine the exact amount of honey to use, but the results are well worthwhile.

It's high time the fruit cakes were made and tucked away to assume mellowness with age. To age any of these fruit cakes they must be very well hidden, for they are too tempting to leave within reach.

Fruit Cake
(all honey sweetening)

One cup dried apricots, 1½ cups apples, 1 cup prunes, cooked, 1 cup raisins, 1 cup dates, 1 cup shortening, 2 cups honey, ½ cup peanut butter, 4 eggs, 2 tablespoons grated orange rind, 1 cup milk, ½ cup water, 2½ cups flour, 1 teaspoon soda, 1 teaspoon salt, 3 teaspoons baking powder, 1 teaspoon cinnamon, 1 teaspoon nutmeg, ½ teaspoon cloves and 2 teaspoons vanilla.

Wash apricots, cut in small pieces, add the ½ cup water, cover and simmer until soft. Add ¼ cup honey. Cool. Core apples and dice; remove pits from cooked prunes and cut in small pieces; pit dates and run through food grinder. Wash raisins in hot water and drain very thor-

Honey-sweetened fruit cake has unexcelled flavor.

oughly. Cream shortening and remaining honey, add peanut butter, and mix well. Stir in well-beaten eggs and the milk. Sift flour, measure and reserve 1 cup for dredging fruits. Add salt, baking powder, soda, and spices to the remaining flour and sift into the mixture. Add dredged fruits and flavoring and blend carefully. Pour into large tube pan, lined with oiled paper. Bake 2 hours in a slow oven, 300 degrees F., increasing heat to 325 degrees F. the last 15 minutes.

Fruit Cake
(all honey sweetening)

One cup honey, 1 cup shortening, 2 eggs, ½ cup orange or pineapple juice, 3⅓ cups pastry flour, ½ teaspoon salt, ½ teaspoon soda, 2 teaspoons baking powder, 1 teaspoon lemon extract, 1 teaspoon orange extract, 1 cup candied pineapple, cut in fine pieces, 1 cup candied cherries, 1 cup raisins, 2 cups thinly sliced citron, 2 cups mixed nutmeats, coarsely chopped, and whites of six eggs.

Cream shortening and honey thoroughly. Add the 2 beaten eggs and mix well. Sift flour, measure, reserving 1 cup for dredging fruits. Sift remainder with salt, soda, and baking powder. Add alternately with fruit juice to first mixture. Add the flavorings, fruits, and nutmeats. Mix thoroughly, then fold in the stiffly beaten egg whites. Pour into well-oiled tube pan. Bake in slow oven, 300 degrees F. for 1½ to 2 hours.

Honey Carrot Pudding

Plum pudding is the traditional dessert for the Christmas dinner but you will like this toothsome Honey Carrot Steamed Pudding.

One cup flour, 1 teaspoon soda, ¼ teaspoon salt, ½ cup butter, ¼ cup honey, ¼ cup brown sugar, 1 egg, well beaten, ½ cup uncooked grated carrots, ½ cup uncooked grated potatoes, 1 cup raisins, and 1 cup nutmeats, coarsely chopped.

Sift the flour, measure and sift with soda and salt. Cream butter, honey, and sugar together. Add the beaten egg, carrots, potatoes, raisins, and nutmeats. Mix well. Stir in dry ingredients and mix thoroughly. Pour into top of well-oiled double-boiler or fill oiled pudding molds two-thirds full. Cover tightly and steam 2 hours. Serve with hot vanilla or lemon sauce.

Filled Date Bars

One cup shortening, ½ cup honey, ½ cup brown sugar, 2 eggs, ⅓ cup sour milk, 5 cups sifted flour, 1 teaspoon salt, ¼ teaspoon soda, and 1 teaspoon baking powder.

Blend shortening, honey, and sugar thoroughly. Stir in beaten eggs. Add the sour milk and fold in dry ingredients sifted together. Chill dough. Roll out in two sheets to fit baking pan. Place one sheet in oiled baking pan, spread with date filling and top with the second sheet of dough. Bake in moderate oven, 375 degress F. Cut in bars while warm.

Filling: One pound pitted dates, ¼ cup honey, 2 tablespoons lemon juice, ¼ cup water. Combine ingredients and cook, stirring constantly until smooth.

Honey Crispies

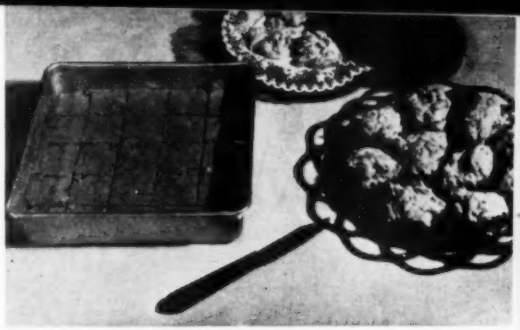
Three cups rolled oats, 2 cups sugar, 8 tablespoons honey, 6 tablespoons water, and 2 tablespoons butter.

Toast the rolled oats in a moderate oven until light brown in color. Combine sugar, honey, and water. Cook to hard crack stage, stirring frequently to prevent burning. Remove from heat and add butter. Spread the toasted oats thinly on buttered cooky sheets. Pour syrup over oats slowly, making the candy as thin as possible. When cold break in pieces.

Honey Fig Bars

Three eggs, 1 cup honey, 1⅓ cups sifted flour, 1 teaspoon baking powder, ¼ teaspoon salt, 1 pound figs, cut in small pieces, ½ cup chopped nuts, and 1 teaspoon vanilla.

Add honey to well-beaten eggs. Sift flour, measure and sift with baking powder and salt. Stir into first mixture. Add vanilla, figs, and nutmeats. Spread thinly in oiled pan. Bake 25 minutes in moderate oven, 375 degrees F. While still warm cut in bars and roll in powdered sugar. Store in tightly covered stone crock. Just before serving roll again in powdered sugar. These bars are better flavored if permitted to stand two to three days before using.



Fill your Christmas gift boxes with creamy honey nougat and flavorsome peanut butter fudge.

Christmas Candies

Today many candy recipes specify cooking temperatures. While a candy thermometer is not essential its use does eliminate much of the guess work and produces uniformly good results every time. It will not take many batches of spoiled candy to pay for a good thermometer. With care good results may be obtained by cold water tests.

Candies are best made in small batches; it is unwise to make double batches at one time. For best results the candy should have the undivided attention of the maker.

Honey Fondant

One and ½ cups sugar, ½ cup honey, ¼ cup water, and ⅛ teaspoon cream of tartar.

In a saucepan combine sugar, honey, and cream of tartar. Add water and stir until the sugar is dissolved. Cover pan and boil 5 minutes, allowing steam to dissolve any grains of sugar on the sides of the pan. Uncover and boil without stirring to soft-ball stage, 238 degress F. Wipe crystals from sides of pan, using a damp cloth wrapped around the tines of a fork. Pour on platter which has been rinsed in cold water. Cool to room temperature. Beat until stiff enough to knead. Toss on board sprinkled with powdered sugar and knead. Knead in 2 to 2½ cups of powdered sugar. Knead until smooth. Place in bowl, cover snugly with waxed paper and allow to stand in a cool place at least 24 hours before using. Use for centers, dip in melted dipping chocolate or wrap around nutmeats.

We like to divide the recipe into thirds. Flavor one part with vanilla, roll out, and spread with peanut butter; roll as for jelly roll and cut in slices. Divide the second part into two parts, flavor one part with vanilla, tint second part pink and flavor with peppermint. Place pink portion on white, roll up, and slice. Flavor the third portion with wintergreen, and shape into mints.

These fondant candies should be served at once or wrapped in waxed paper as they have a tendency to absorb moisture upon standing.

Honey Chocolate Caramels

Two cups sugar, ½ cup honey, 1 cup heavy cream, 3 tablespoons butter, 2 squares unsweetened chocolate, ¼ teaspoon cream of tartar, 1 teaspoon hot water, and 1 teaspoon of vanilla.

Dissolve sugar in cream and place over heat. When boiling point is reached, turn fire down and add butter, the cream of tartar dissolved in the hot water, the honey and chocolate, stirring until well mixed. Cook, stirring occasionally to prevent sticking, to firm ball stage, 260 degrees F. Remove from fire, add vanilla and pour into buttered pan, making about ¾ inch deep. When cool, cut into strips with sharp knife; remove from pan and snip into squares using scissors. Wrap at once in waxed paper. Makes 2 pounds.

Christmas Nougat

One cup sugar, ½ cup water, 2 tablespoons cocoa, 1 teaspoon vanilla, ½ cup candied cherries, cut in small pieces, ¼ cup candied pineapple, finely cut, ½ cup chopped nutmeats, and 3 egg whites.

Combine sugar, cocoa, and water. Boil to crack stage (brittle when tested in cold water.) Pour slowly over the stiffly beaten egg whites, beating constantly. Continue beating, pouring on slowly a second syrup made by combining 2 cups sugar, ½ cup honey and ¼ cup water. Boil to crack stage. Continue to beat until the mixture becomes stiff and begins to lose its gloss. Add vanilla, nuts and candied fruits. Pat into buttered pan and crease in squares or bars.

Honey Peanut Butter Fudge

Two cups sugar, ½ cup water, ½ cup honey, ¼ cup peanut butter, 1 teaspoon vanilla, ½ cup chopped nuts, and 1 egg white.

Combine sugar, water, honey and peanut butter. Cook to firm ball stage. Pour slowly over stiffly beaten egg white. Let stand until pan is comfortably cool to the hand. Beat until mixture will hold its shape when dropped from spoon. Add flaoring and nutmeats. Drop by teaspoon on waxed paper or pat into buttered pan and crease in squares.

And again—Merry Christmas everybody!

With Milk and Honey Blest

Florence Naile

It is not Jerusalem the Golden alone that can claim this distinction. Many are the persons who, having learned of the affinity these two delectable foods have for each other, have made use of that knowledge and understanding in ways that are of untold value to the people as a whole; for much of the welfare and prosperity of any country has its foundation in the food its people eat. Sound minds and sound bodies are essential attributes of a great nation.

We have among us those who have persistently and publicly extolled the virtues of honey and its value as an article of food, its health-giving qualities, and for them we are always waving banners, ever singing songs of praise. But there are hundreds of others who go quietly and without ostentation about the day's work, using honey and passing it on to others, of whom the world has never heard. Let us also remember them.

One such modest user of honey we discovered in the genial proprietor of the Ed. Wallace Bakery, in the little city of Circleville, Ohio. Mr. Wallace has been in the bakery business for twenty-five years; but not until two years ago did he conceive the idea that he could give his already large trade a better and more wholesome product by using honey, and now his special loaf is known as Honey Boy Bread. This name is displayed in large letters on each of the ten trucks that go out daily from his plant, as well as over the sales room of the bakery itself. On the well-designed and attractive wrapper of red, white and blue is printed, in addition to the name, "Made with Milk and Honey."

In fact, the word Honey appears in seven places on this wrapper. Women have learned, especially during these depression years, to be true conservationists, and this wrapper of heavy waxed paper is carefully saved to be used in various ways.

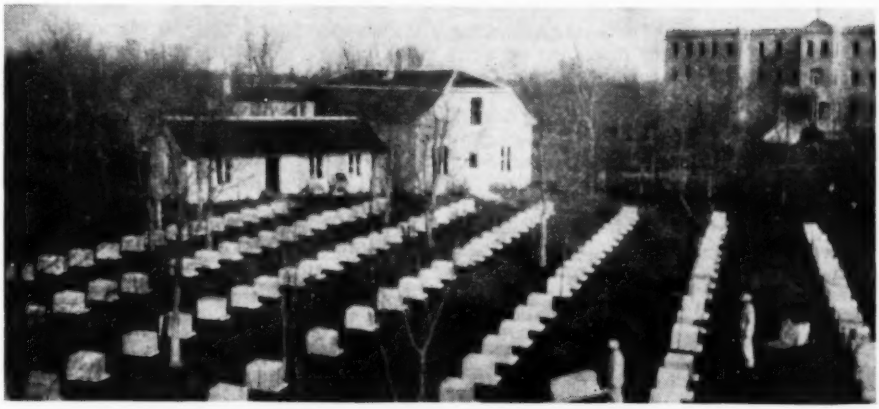
When I asked Mr. Wallace what led him to the use of honey in his bakery, he replied that he believed it would make a superior product, one that the people would appreciate; it would be good advertising, as it would not only sound attractive, but would also contain only the truth—very convincing arguments. That he was remarkably astute in his deductions is proved by the fact that when Honey Boy Bread was put on the market, the Company's sales increased more than twenty-five per cent in a few weeks, and they are still growing. To the writer this is not surprising, for although I have eaten bread in many parts of the world, never have I tasted a bakery product that is equal to Honey Boy.

Besides this special loaf of bread, the Wallace Bakery also puts out a chocolate fudge cake made with honey, and a honey cream cake. Both are superior products, of excellent flavor and unusually fine texture. Women who have tried to use honey in making cake have sometimes complained that the texture was inclined to be coarse. Surely further effort on their part would be worth while, as it would not be possible to have cake of finer texture than the honey cakes made by the Wallace Bakery. Nor have the finest home-made cakes a better flavor. The keeping quality of both bread and cake is almost unbelievable.

Although Circleville has a population of only seven thousand, this bakery is putting out about three thousand pounds of bread every day. This is sold within a radius of twenty miles, ten trucks going out every day except Sunday. One of these supplies the wholesale trade, the other nine making deliveries direct to homes. The large display advertising on these trucks is making honey familiar to every one in this part of the country.

Only the best quality of honey is used in the Wallace Bakery—about three hundred pounds a week. Twenty-six people are employed regularly, and there is a general invitation to come and see the plant in operation. It is light and airy, and the last word in cleanliness and sanitation—just the kind of place that makes every one interested in honey feel proud that this product is used there.

Columbus, Ohio.



Apiary house and main building of Maison St. Joseph, Otterburne, Manitoba.

Beekeeping in Manitoba

L. T. Floyd
Provincial Apiarist of Manitoba

A Province Outstanding for High Per Colony Yields of Honey

When beekeeping is under consideration the central location of the province of Manitoba has both advantages and disadvantages. The advantages are these: Changes of wind do not so quickly change the temperature as in districts that border on the sea. The summer is short but intensive. It is true the northern seas are near at hand and when the wind comes from the North it quickly changes from heat to cool and even frosts, but North winds are unusual in the growing season.

The central position makes it convenient for procuring package bees. Railway lines lead South in almost straight lines to the Twin Cities and Chicago where fast trains bring the bees to us with little delay. Number 75 Highway leads straight South to Texas and is paved nearly all the way.

Soil Fertility Attracted Early Settlers

The disadvantage of a central location lies in the distance to the large cities to the East and West coasts when it comes to marketing the crop. The rich black soil of Manitoba was the attraction to early settlers. Fertility was at first considered inexhaustible but the continued growing of grain crops has shown that something else must be grown to make up for soil depletion. This is where sweet clover came into the picture.

Not all soil in the Province is black. In some districts that have been cleared from bush and reclaimed from muskeg the soil is quite different. The heavy honey-producing districts are, however, only found in the black soil districts. In some years the other districts yield heavily but are not so dependable as the black soil districts.

The color of the honey produced in Manitoba is nearly all white. When the writer came to the province he set up Fair price lists with classes to cover light, amber, and dark honey. After about three years, the latter two classes were removed as all entries in these classes were cappings-melter honey where color was caused by heating. No natural-colored amber or dark honey was shown.

Sweet Clover—The Principal Honey Producer

When the writer came to this Province in 1921, there was little sweet clover grown. A few were experimenting with alfalfa which, probably on account of the altitude, yields little nectar.

In 1921, there was in Manitoba one apiary of 65 colonies which at that time I believe, was the largest. As the sweet clover acreage in-

YUM

creased there was a corresponding increase in numbers and size of apiaries, until today the story is different. Dairying has made a great contribution to beekeeping as sweet clover supplies the pastures that keep green in times of drouth and fields of sweet clover yield an abundance of fodder for winter months. The largest development in honey production has been in the dairy districts of Springfield, St. Pierre, and St. Claude.

There are also immense districts in the Province where the soil is lighter in texture and is subject to blowing. Here the sweet clover seeds itself as it blows from the fields to the road allowance where it grows in forests six feet high to produce more seed to run down the ditches with the spring run-off or blow back into the fields from whence it came. Seeds are thus carried miles away to settle on river and lake banks to grow again and keep up its propogation until the borders of drainage ditches, river banks, and lake shores are hedged with sweet clover in every direction.

Bees and Cattle

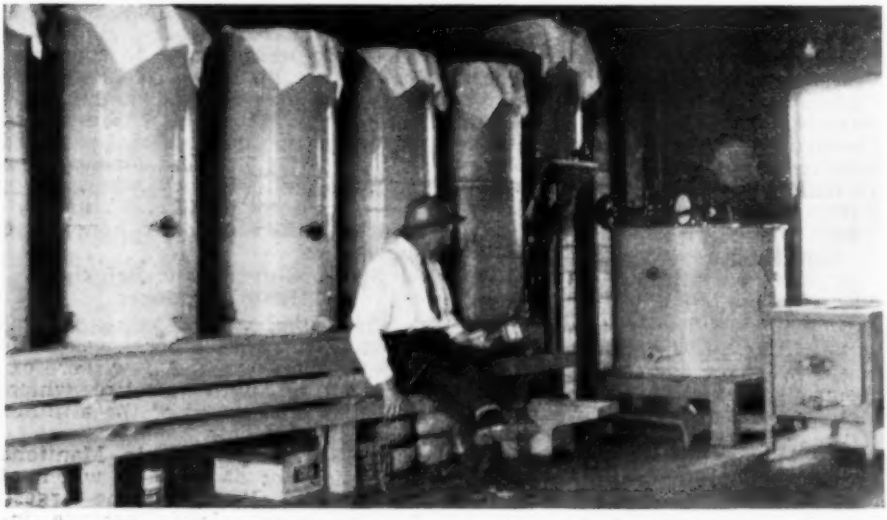
Since the advent of sweet clover the beekeeper has followed the dairy-farmer. Migrant beekeepers seeking pasturage for their bees would move into districts where considerable acreage for sweet clover was to be found. Impressed with the heavy yields of honey being gathered from the fields on which their cows were pasturing, not a few dairy farmers have become beekeepers. Some still keep cattle to eat the clover but not cows to milk. They have turned their milk record books into hive record accounts. Instead of keeping milk cows they buy a car of feeder cattle in the fall to keep the hired man busy during the winter, feeding and fattening them. The owners are then free to go South to talk bees until spring with the package men.

It must not be inferred that the entire population in the dairying districts keep bees. Far from it, but a large percentage of the honey produced comes from such districts.

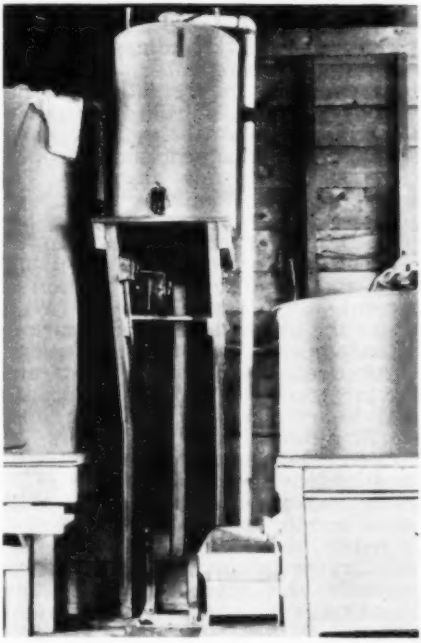
Package Bees and Strawberries

The importation of package bees might be termed artificial migration. The Manitoba country-side in summertime is covered with bird life. Nearly all birds depart for the South in the fall. About the time of their departure some thirty percent of the Manitoba beekeepers, according to records, kill their bees, extract the honey and put the combs away with enough half-filled combs of honey and pollen for spring use. Then during the winter sufficient bees are ordered to fill these hives again in the spring.

Everywhere in America bees swarm in strawberry time. This appears to be the peak with them. It is interesting to note that Manitoba



Inside of honey house showing storage tanks—capacity 1000 pounds each.



Honey pump and settling tank.

people in the spring (in April and May) buy fresh strawberries and bees from the same states and that they travel together in the same express cars to Winnipeg.

The Intensive Season

The southern shipper of package bees scolds continually regarding the rush Canadians are in about getting bees in the spring. He rightly asks how he can be expected to run a business that takes the product only from April 15th to May 15th. He should be here in the spring and it would be plain to him. When spring comes in Manitoba it seldom kicks back. Sunny days follow each other in rapid succession. The sun shining on this black soil warms it up and starts growth very quickly.

The snowfall is not heavy in spite of what the natives think. I have travelled over Northern New Brunswick in the winter time where there was four times as much snow as I have ever seen in seventeen years spent in this Province. Because there are no thaws in winter to make ice, the snow leaves in a few days in the spring and winter jumps to summer.

If the producer of bees could rear them from egg to adult in two weeks they would be popular, as every day from the middle of April to the middle of June counts because yellow sweet clover starts to secrete nectar about the middle of June and we have other varieties following in succession from that time. Every week makes a great difference in the hive population. Bees delivered May 15th have only one month and the difference between the two dates may make one hundred pounds of surplus in an ordinary season.

Disease and Inspection

About five years ago in Manitoba the matter of disease had reached the point where producers were becoming desperate. A $1500 government grant served only to reach the districts that were known to be diseased, with no consideration for the clean districts. It was then a matter of getting the balance of the money some other way.

The heads of the Department of Agriculture felt their duty had been performed when $1500 was annually provided. One of our large producers

The Lane Apiary.

Wesley Hunter developed an apiary of ten colonies 12 years ago into this 200-colony apiary. Honey crop estimated at 40,000 pounds of white honey in 1936.

suggested a nickel tax and from this suggestion the following plan developed. An annual registration fee of fifty cents an apiary was levied with a tax of a nickel a hive to a maximum of $15.00. Experience has shown that it requires about ten cents a hive to inspect bees in Manitoba. The combined levy and government grant provides the required funds for annual inspection.

While there is no guarantee to inspect every hive in an apiary or every apiary in a district or even every district, every beekeeper must pay. The registration fees become payable in June and by October 1st last year 93% had registered, which goes to prove that the policy has been generally accepted. Following October 1st delinquents were taken to Court in order to enforce payment. This, of course, was a necessity if faith was to be kept with those who paid willingly.

This policy has permitted putting on the men required for the inspection work with no criticism from the taxpayer. Inspectors are instructed to find disease and burn it. In 1937 two and a half percent of colonies were destroyed.

The problem that confronts inspectors is made plain by the table below showing the classification of apiaries for 1936.

Marketing

Up until the beginning of 1937 Manitoba, because of its central position was badly handicapped in its marketing, and repeated applications for reduction in freight rates met with poor results from transportation companies until the unmarketed surplus had reached such proportions as to become alarming. The warehouses in Winnipeg, filled with spoiling honey, some of which had been held for four years, finally reached the ears of those who could help and a substantial reduction in freight rates both East and West broke the blockade and new markets at once opened in both directions.

As a result of lower freight rates the large cities of Montreal, Toronto, and Vancouver, were thrown open to Manitoba honey producers. In 1937, beekeepers were favored with a splendid crop when other provinces were not so fortunate. With ideal conditions for the production of honey and a high quality product meeting with favor on the large markets the future for Manitoba beekeepers looks exceedingly bright.

End view of Wesley Hunter's apiary house.

Production Estimates for 1936

Size of Apiary Colonies	No. of Apiaries	No. of Colonies Registered	Average Crop Lbs.	Total Crop Lbs.
1 to 10	2,512	8,809	170	1,497,530
11 to 20	346	5,279	156	823,524
21 to 50	352	11,630	140	1,628,200
51 to 100	102	7,439	150	1,115,850
101 and up	82	16,822	170	2,859,740
Unclassified	46	1,333	158	210,614
	3,440	51,312	944	8,135,458
Average production per hive			158.6 lbs.	
Beeswax, estimated at			82,000 lbs.	
Value of honey at 7c, approximate			$569,000.00	
Value of beeswax at 20c, approximate			16,400.00	
Value of honey and beeswax			$585,400.00	

Size of Cells in Honey Comb

E. R. Root

Why Bastard-Size Cells Will Not Exclude Drones

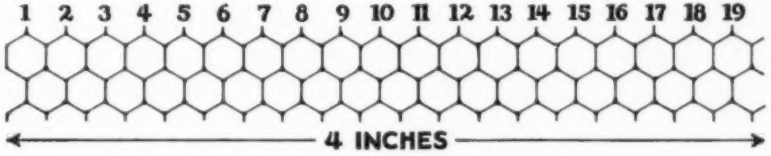
If the average beekeeper were asked how many cells, worker and drone comb, there were to the linear inch, he would undoubtedly answer five and four, respectively. Indeed, some text books on bees carry that ratio. Approximately it is correct, but not correct enough for the bees, particularly the queen. The dimensions must be exact or there is a protest. In 1876, when A. I. Root, built his first roll comb foundation mill, he had the die faces on the rolls cut for five worker cells to the inch. While the bees built beautiful combs from this foundation, and the queen laid in the cells, yet, if given a chance they appeared to prefer their own natural comb not built from comb foundation. Suspecting the reason, Mr. Root then began measuring up many pieces of natural comb when he discovered that the initial cells, five to the inch, from his first machine were slightly too small. The result of his measurements of natural comb showed slightly over nineteen worker cells to four inches linear measure, or 4.83 cells to one inch. In later years, H. H. Root, when starting work on a new foundation mill, confirmed the measurements of his father, namely, 19⅓ cells to four inches linear measure (4.83 cells to one inch), taken across the vertical cell walls. Measurements taken in the two diagonal directions downward between parallel walls were slightly more, if anything. This would make from 825 to 850 cells to the square decimeter, including both sides of the comb. The drone size would be 496. The reader is requested to remember these figures for that which is to follow.

Well, to come back: When A. I. Root made a comb foundation with the same dimensions as the bees make, (4.83 instead of 5 cells to the inch), he found that the bees and queen accepted the new foundation, and this has been the judgment of the bees and beekeepers for the last 65 years. To put the matter another way, five cells to the inch, 20 cells to the four inches is too small while 19⅓ cells to four horizontal inches is just right. This has been the standard, apparently, for the best makes of brood foundation in the United States for the last 65 years.

Will Larger Cells Develop a Larger Bee?

Taking 825 to 850* cells to the square decimeter as standard, (including both sides), Ursmar Baudoux, a Belgian, in 1893 conceived the idea that cells larger than 850 to the square decimeter would or could develop correspondingly larger bees with a longer tongue reach,—and why not? He began testing founda-

*In the Bee World, page 43 for 1937, Swammerdain puts the size of natural worker comb as 870 per square decimeter; Maralch, 789 and 954; Reaumur, 832; Klugel, 832; Castellon, 763, 828. Two hundred years ago when there was no foundation, the size of natural worker comb varied from 830 cells to the square decimeter, or even more, to 790 or even 760, according to Honegger. The author's figures of 825 to 850 are not far wrong.



tions by stretching from 750, 740, 730 to as low as 700 cells to the square decimeter. By 1896 he apparently proved his theory so that a comb foundation manufacturer built a mill with enlarged cell bases. The result of the tests by Baudoux seemed to show not only larger bees, but a longer tongue reach and larger wings. He also believed that the larger bee would develop more body heat.

In the Bee World for 1934, page 3, January issue, Baudoux gives an elaborate set of figures of cell sizes with the corresponding sizes of the workers along with other sizes of the wings and length of tongues in decimeters.

These apparently show that the tongue length bears a constant ratio to the size of the cells. The question has been very properly raised whether tongue reach bears the same ratio.

Apparently without the knowledge of what Baudoux was doing, a Frenchman, Mr. Pinchot, was testing out a larger cell foundation, 736 cells to the square decimeter. His results showed likewise a larger bee. He claimed that these bees gathered one-third more honey.

In the same way a Russian worker claimed a larger bee from larger cells and these bees he believed would procure larger crops of honey.

Again, H. Gontarski (Bee World, page 81, 1935) finds that the greatest percentage of increase in size of workers occurs when the cells are 5.74 mm. diameter, which is equivalent to 700 cells per square decimeter. "He points out," says the Bee World, "that the variation in size of individual bees in a colony is partly due to phaenotypic variation due to the cell size and partly to differences called forth by the quality and quantity of food; differences, in fact, that are similar to but less than those which cause a worker larva to become a queen when suitably fed and nursed." He believed further "that the influence of the cell is mainly exerted indirectly by providing more room for food; but does not deny a possible direct influence as well, due to more room for growth."

The evidence so far presented seems to indicate that a larger cell is only one factor for furnishing larger bees. Some late work, however, seems to show that even if larger cells furnish larger bees, there are other factors necessary to bring about any increase in the size of bees.

Work Done Under Dr. Park of Iowa State College

Under the direction of Dr. O. W. Park of Iowa State College, the problem was attacked in 1930 by Roy A. Grout, then Research Assistant in Apiculture at that institution. Results of this work are reported in Research Bulletin No. 218 of the Iowa Agricultural Experiment Station. The following excerpts explain:

> The data presented show conclusively that size of brood cell is a factor in determining the size of the adult worker bee and that significantly larger bees are obtained through the use of artificial foundation having enlarged cell bases.
>
> We cannot agree with Baudoux either in the magnitude of the results he obtained or the consistency of them. While Baudoux records an increase of from 11.9 percent to 25 percent in tongue reach as the size of brood cell increases from 850 cells per square decimeter to 700 cells per square decimeter, we are able to record increases of only 2.07 percent, 1.51 percent and 1.40 percent in length of proboscis for colonies 25.21 and 18 respectively. * * *
>
> Our data from colony 25 substantiates those of Michailov which show that an increase in the size of brood cells is accompanied by a corresponding increase in the weight, length of right forewing, width of right forewing, sum of widths of third and fourth tergites and length of proboscis. Colonies 18 and 21 yielded somewhat conflicting results.
>
> Whether the increases in the measurements of the worker bees recorded in these data are significantly related to honey production has yet to be proved.
>
> It is apparent, however, that the size of brood cells alone is not sufficient to produce a much larger worker bee. It is reasonable to state that selection and breeding of bees plus the application of extrinsic factors such as size of brood cell should accomplish marked results in that direction and that, with selection and breeding for a larger bee, a larger brood cell may be a necessary factor.
>
> It is of interest to mention that difficulties were encountered in getting the queens to oviposit worker eggs in the enlarged cells when all three sizes were in the same hive at the same time. This was particularly true in the case of Cell C.* While the worker bees apparently recognized no difference in constructing the three sizes of cells, the queen bees showed a preference for the normal-sized cells.
>
> *700 cells per square decimeter.

Queens and Bees Prefer Normal Size of Cells

A. I. Root in the early seventies, and again M. T. Pritchard and H. H. Root tried out various sized cells in honey comb. Clearly it was shown that when the worker cells are too small, five to the linear inch, bees and the queen, when given a choice, preferred the larger sized cells, 4.83 to the linear inch. Conversely, when

the cells are too large, there are difficulties that counter-balance the good.

The bees, and particularly the queen, if given their choice, will select the normal-sized cells, that is, 825 to 850 cells to the square decimeter. It is well to note, too, that it is by no means proven that larger bees will produce a correspondingly larger amount of honey. We must not be misled by enthusiasts not trained in scientific research work. Too much may be taken for granted. As Caesar of old said, "Most people are inclined to believe what they want to believe." Again, when cells are larger than normal and the conditions are right (i.e., when the queen has the urge to lay drone eggs in the absence of an adequate supply of full-sized drone cells) the queen may and often does lay drone eggs in cells intermediate in size between normal worker and normal drone cells. Here is an economic waste. A cell of drone brood uses a cell of honey.

Finally, worker bees, according to Cheshire, abnormally large would be out of tune or harmony with most of the plant life. Each flower that depends on insects has its own insect pollinator. Many and most honey bearing flora are just right for normal honeybees. On the other hand, bumblebees, the right size for red clover, are too big and clumsy for the ordinary clovers. They are slow of flight, too big to get into most blossoms, and what is more, cannot match normal honeybees in honey gathering qualities. On this point Cheshire had this to say in Volume 2, "Bees and Beekeeping," pages 317 and 318:

> The economics of the question must not be overlooked. In gathering from clover, it has been shown that about 1/350th grain is secured at each visit. Let us imagine that our bee is enlarged twice, by which its weight has grown eight-fold. As it flies, carrying its large body from clover-bloom to clover-bloom, an amount of wear and tear is involved which is eight times as great as that accompanying similar movements in the normal bee. This wear and tear is replaced by food—of course, proportionately augmented, and which has to be deducted from the 1/350th grain secured. The net increase to the stock is, therefore, less at each visit, in the case of the large bee, than in that of the normal one. The former, however, has the advantage of being able to decrease its return visits to the hive to unload, because its honey-sac is larger; but this is the only gain, and it is much more than counter-balanced by the fact that, with normal bees, eight independent gatherers would be at work simultaneously for only the same wear and tear that would permit of the efforts of one if the bulk were increased as supposed. Selection has gone on for ages regulating the proportions of the wondrous insect between those extremes in which the loss by excessively frequent returns to the colony, and the loss through excessive bodily weight, balance each other, and has thus given us a bee whose size yields the best possible results.
>
> The botanical reason for desiring no alteration was expounded in Vol. 1. Flowers and bees have been constantly interacting. The build of every floret is adapted to that of its fertilizer, and, could we suddenly increase the dimensions of our hive bees, we should throw them out of harmony with the floral world around them, decrease their utility, by reducing the number of plants they could fertilize, and diminish equally their value as honey-gatherers. Mechanics, physiology, economics, and botany alike, show any craving after mere size to be an ill-considered and unscientific fancy for which it would be even difficult to find an excuse.

Cell Size to Shut Out Brood Rearing

From the foregoing it is apparent that both the queen and the bees prefer a size of cell that is just right for the rearing of either worker or drone brood. Given a preference as to the right size, a queen is inclined to avoid any cells abnormally large or abnormally small.

The suggestion has been made at various times that a foundation could be produced, the cells of which are just halfway between the sizes of worker and drone cells. From this the combs could be drawn, and theoretically, the queen, if supplied with both the right size worker and drone cells, would avoid the intermediate size.

Unfortunately, practice does not seem to carry out or support this theory. The author had a machine made that would produce a special foundation having cells intermediate between worker and drone size. Combs drawn from this bastard size of foundation were put into our apiaries and given a thorough test. Our foreman of the yards reported that while in some cases the queen avoided these bastard combs, too often she laid drone eggs in them, which resulted in a large amount of drone brood; and a cell of brood, drone or worker, is equal to a cell of honey. Not only that, it is a waste of time as well as a waste of material. Samples of this intermediate cell foundation were sent out elsewhere, and the results were the same.

All of this goes to prove the previous contention that a change in the size of the cell, either worker or drone, results in the queen either avoiding these cells if she can get standard cells, or worse yet, depositing drone eggs in such cells, resulting in an unnecessary amount of drone brood.

Chemical and Physical Properties of Honey

R. E. Lothrop

Carbohydrate Research Division, Bureau of Chemistry and Soils, U. S. Department of Agriculture

(Continued from November)

The Nature of Dextrose and Levulose

Dextrose is exceedingly common in nature, being found in many plants, and in all parts of these plants, in greater or less amounts. It usually occurs with levulose, or with both levulose and cane sugar. It may by simple chemical means be manufactured artificially from any starch, a well-known instance of artificial manufacture being the corn sugar made from corn starch. Corn sugar might with great propriety be called starch sugar, since it can be, and is, manufactured from potato and other starches.

Dextrose is the form of sugar that occurs in the blood, and is sometimes referred to from this standpoint as blood sugar. Its importance from this standpoint is exceedingly great, since any appreciable departure from the normal blood sugar level of the blood quickly results in coma or death. The so-called diabetic coma is due to inability of the system to use the dextrose that enters the blood stream in case of diseases such as diabetes, so that excessive amounts of dextrose accumulate in the blood. If the blood sugar level drops too far below normal, serious illness and even death may result. This sometimes occurs in over-administration of insulin in the treatment of diabetes. Dextrose is slowly used up, or "burned", in the body to supply heat or energy. This energy is used in maintaining body temperature or in performing muscular work. If other sugars or carbohydrates are consumed as food they are changed into dextrose in the processes of digestion before entering the blood stream. Dextrose is therefore a very important substance from the standpoint of life processes, and it is this sugar that supplies the energy that permits us to do work and maintain our body temperature.

Dextrose is produced from a number of parent substances by processes called hydrolysis. By this is meant the process of addition of water to the parent substance to produce the simple sugar (or sugars). We have already seen that cane sugar produces dextrose and levulose when it undergoes hydrolysis. This hydrolysis can be brought about by means of the enzyme invertase, or by treatment with a small amount of acid and warming. In either case 95 parts by weight of sucrose combine with 5 parts by weight of water to produce 50 parts by weight of dextrose and 50 parts by weight of levulose. To the chemist this means that one molecule of sucrose combines with one molecule of water to produce a molecule of dextrose and a molecule of levulose. In this process the invertase, or the acid, used to promote the change is not used up, but remains unchanged at the end of the reaction; such substances are known as catalysts. In general, enzymes are nature's catalysts, and acids are used by man (usually accompanied by heating) to bring about these breaking down processes of carbohydrates and sugars to produce simple sugars.

Many other substances produce dextrose on hydrolysis. The production of dextrose from starches has already been discussed. Other sugars yield dextrose on hydrolysis. Maltose (malt sugar) produces only dextrose when hydrolyzed. Lactose (milk sugar) produces dextrose and galactose (a simple sugar) in equal proportions. Many naturally occurring substances called "glucosides" produce dextrose, along with other products, when hydrolyzed. Cellulose, the substance that makes up the cell wall structure of plants, and occurs in almost pure form in cotton and in wood, can be hydrolyzed to dextrose by means of acid and heat.

In addition to its occurrence as discussed above, levulose occurs in certain plants in a complex form called inulin. This material is somewhat like starch, but when hydrolyzed it produces levulose just as starch produces dextrose. Inulin is not nearly so widely distributed as starch. Chicory, dahlia bulbs, and Jerusalem artichokes, are the principal sources of inulin.

Sugars Distinguished by Polarized Light

Reference has already been made to the effect that certain sugars have in rotating the plane of polarized light. Many years ago chemists discovered that if a beam of polarized light is passed through certain organic solutions, the plane of the beam of light is rotated either to the right or to the left. Ordinary rays of light are energy waves emanating from the light source and vibrating equally in all directions, similar to radio waves, but of markedly different wave lengths and rapidity. If now a ray of sunlight is passed through a crystal of feldspar, it thereafter vibrates in one direction only instead of in all directions. If this ray of directed, or polarized, light is passed through a solution of sugar, it no longer vibrates in the same plane as formerly, but the plane of vibration is turned to the right or to the left. The amount and direction of this turning is exceedingly valuable to the chemist in the determination of sugars present in a solution, since each one behaves differently in its effect on polarized light. As the names would indicate, dextrose rotates polarized light to the right, while levulose rotates the plane of vibration to the left.

The explanation of this effect of the sugars on polarized light is most interesting. Both dextrose and levulose consist of exactly the same number of atoms of carbon, hydrogen, and oxygen, but these atoms are differently arranged in the two sugars. In both cases the arrangement of the atoms is such as to produce a lack of symmetry, which is the cause of the turning of polarized light. The extent to which levulose rotates polarized light to the left is considerably greater at ordinary temperatures than the corresponding rotation of the same amount of dextrose to the right. Thus a solution containing equal quantities of the two sugars will show a decided left-hand rotation. This is the reason honey exhibits a left-hand, or minus (−) rotation, even if the proportions of dextrose and levulose are approximately equal. In the case of honeydew honey, which shows a right-hand, or plus (+) rotation, the presence of comparatively large quantities of gummy substances called "dextrans", which themselves possess very high positive (+) rotations, counteract the ordinary negative (−) rotation of the sugars. Honeys that show positive rotations are generally considered as honeydew, and those showing negative rotation as floral honey, although this division is somewhat arbitrary.

How Nature Manufactures Sugar

In the vital processes of the plant, when the rays of the sun fall on the green coloring matter (chlorophyll) in leaves, a very fundamental chemical process is put under way. Carbon dioxide and water vapor, ordinarily difficult to combine, are united to form a carbohydrate. The word "carbohydrate" refers to this union of carbon and water (hydrate). In the process of formation of the carbohydrate, a very large amount of energy is stored in chemical form. This energy is taken from the sun rays falling on the leaves, and the whole process is known as "photosynthesis". It is by this process that energy is stored in plants to be used by animals as a source of energy when the plants are consumed as food. The amount of energy given up by starch or sugar when it is burned to form carbon dioxide and water, either in a colorimeter or in the body, is the same as that required to form the carbohydrate by photosynthetical processes in the plant. Starches and sugars are among those classes of substances known as energy foods, and since honey consists so largely of sugars, it is primarily an energy food. The simple sugars, of which it is composed do not require preliminary digestion in order to split them into simpler form before they can be absorbed into the blood stream. As a food honey is, therefore, in a form that supplies to the body quickly available energy.

In certain types of honeydew honey another sugar is sometimes found that imparts rather peculiar properties to the honey. This sugar, known as melezitose, is not very soluble in water, and tends to crystallize out very readily. Honeydew, containing appreciable quantities of melezitose, frequently crystallizes in the comb, and this type of crystallization is comparatively easy to distinguish from ordinary dextrose crystallization. Honeydew honeys containing very high proportions of melezitose have been reported. Since this sugar occurs only infrequently in certain honeydew honeys and in all probability does not occur in or-

(Contiinued on page 782)

The Immortal Huber

Kent Pellett

The Blind Naturalist Who Revealed the Mysteries of the Hive Through His Servant's Eyes

If the beekeepers had a patron saint he would be Francis Huber, the blind naturalist of Geneva, who was first to learn, in most particulars, the habits of the bees.

The story of Huber is really the story of three people—three people so attached that their devotion became the theme of French poetry and drama.

His wife, Marie-Aimee Lullin, married him against the will of her parents, and stuck to him for 40 years.

His servant, Francis Burnens, an ignorant man, strove hard to learn and to perform the experiments of his blind master, and in his observations performed feats of endurance almost incredible.

Others have celebrated this trinity. It would be irony if the beekeepers were to forget them.

"I saw", "I saw with my eyes", Huber often said and wrote, although he was blind, for he was determined to minimize and forget his blindness, and to make others forget it. He often complimented women on the elegance of their gowns, the rare color of their cheeks. And often on his walks, his face alight, he would call attention to the beauty of some view. It was a habit he had formed to speak as if he saw, when as a boy, the doctor told him he was going blind.

It was this determination, combined with his warmth of manner, that surrounded him with willing helpers and enabled him to see more in his chosen field than had any other observer in his or any other time.

Francis Huber was born at Geneva, Switzerland, July 2, 1750. His family were all smart people. He had a literary aunt, an uncle who devoted himself to alchemy, and a brother who was an able painter of animals. But the most versatile of all was his father, Jean Huber. He distinguished himself as a poet, a painter, a musician, a sculptor, and yet had time to make extended specimen collections of natural history, and to write a book on birds of prey consulted by scientists of his time. His witty conversation won for him the friendship of the French philosopher Voltaire, probably the greatest wit of all time.

Young Francis inherited his father's grace and most of his aptitudes. He had a good voice and was familiar with Italian music. But his chief interest was in nature. He hid himself in a laboratory at an age when other boys scarcely had heard of science. After studying all day he would read French novels by feeble lamps at night. His parents took away the lamp to send him to bed, but he continued to read by the help of the moon.

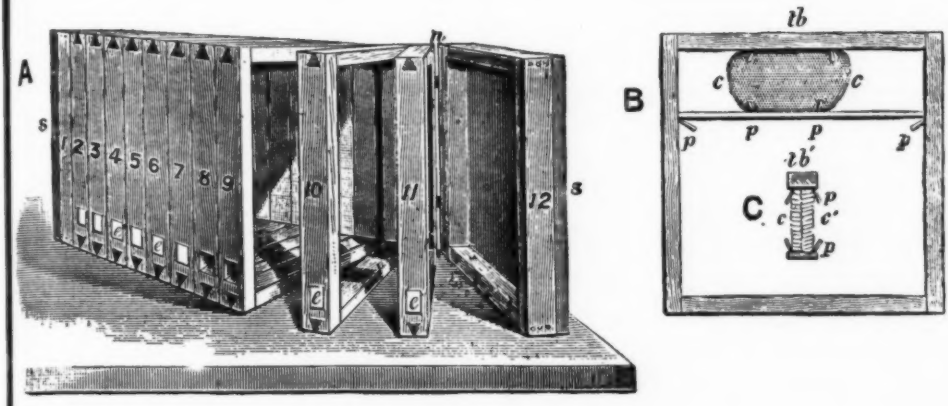
This intemperance ruined young Huber's health by the time he was fifteen, and his eyesight was threatened. His father took him to famous Paris doctors, who ordered him out on the farm. He lived with the French peasants and regained his health.

But while his body felt the surge of renewed vigor, the shadows had deepened in the world about him. When he went home he knew he was going blind. He could not much longer see his family and his sweetheart.

He had fallen in love with Marie-Aimee Lullin years before in dancing class. At seventeen each thought life impossible without the other. Francis affected a light-hearted manner. But his growing handicap could not long be concealed.

Marie's father would not consent to her marrying a blind man. But she would not give up her lover. Francis needed her now, and she would never leave him, she said.

Monsieur Lullin became disagreeable. Other unions with young men of good family he thrust in her way. He did everything to discourage her. But at 25, when she was of age, she



Huber's leaf hive.—From Cheshire.

proudly led Francis Huber to the altar.

With the help of his wife and Francis Burnens, his servant, Huber continued his studies. He became interested in bees, and was so much impressed with the experiments of the French scientist Reaumur, that he decided to undertake some for himself. Burnens, though ignorant, was intensely interested, and he understood so readily that Huber decided to train him.

He gave Burnens first some simple experiments in physics to perform, then more complicated ones. Then, with glazed hives, under Huber's directions, the servant performed the experiments of Reaumur, and got exactly the same results as had the French entomologist. Huber was delighted. His confidence in Burnens was completely established. He undertook new experiments of his own.

They devised his leaf hives, in which the frames fitted and opened like the leaves of a book, and with these it was possible to carry on experiments unthought of by the earlier scientists.

Huber held Burnens to the most painstaking work. It was not unusual for the servant, without rest or food, to watch individual worker bees for 24 hours. And at other times he caught one by one all the bees of whole colonies.

Huber himself was very adroit in the performance of experiments. At one time he aided Senebier, who wished to experiment on the germination of wheat. Senebier, unskilful, outlined what he wished to do, and the blind man did the work.

The eighteenth century was ready for Huber to dispel the myths propagated about bees since the dawn of history. He established bee biology so completely that the work of later observers has served, except in minor detail, to confirm his findings.

He uncovered such new and fundamental facts as that the queen mates but once, and that in mid-air; that the queen lays eggs which hatch outside her body; that the unmated queen produces drone progeny; that worker bees are female in sex. He discovered that bees exude wax in scales from their abdomens, and described in detail, step by step, the process of comb construction. None of these things was known before the blind man found them out.

Huber gave the results of his work to the world in 1792, in his "New Observations Upon Bees", published them in the form of letters to a friend. His vivid descriptions enabled the reader to see what Huber himself had not seen. The book attracted immediate attention. One by one the academies of Europe attested the worth of his achievements by admitting Huber to their fellowships.

The attentions of Huber's family relieved him of the irritations that harass most of mankind. He held it an infirmity to be uncheerful or to complain. He could pass in a moment from serious discussion to gay banter. In his old age he still liked youthful company.

Thus passed the active life of the blind Swiss naturalist, and left behind it achievements scarcely rivalled in the pages of beekeeping.

Fort Dodge, Iowa.

From the Field of Experience

COMB HONEY IN NORTHERN MAINE

O. B. Griffin

When I wrote under date of July 7 for the August North, East, West and South department, the prospects were surely not encouraging, but there was one bright spot on the horizon; there was clover everywhere, and an abundance of moisture in the soil. I knew there could be weather conditions which might produce a crop of honey. The weather continued showery but there were days when the sun shone and it was hot. For two or three days at a time honey came in fast, then heavier showers would seem to wash it all away and the bees would loaf. Then warm days and sunshine again and honey came in with a rush. I decided some years ago that a wiser mind than mine controlled the weather, and I would not complain about it, but do the best I could. To quote a verse of James Whitcomb Riley as nearly as I can recall it:

"What's the use to murmur and complain,
It's just as well and easy to rejoice;
When God meets out the weather and sends rain,
Why rain's my choice."

Today, August 15, with a week or two left—when it is possible to secure some surplus, with favorable conditions, we have to date, on the hives and taken off, one of the best crops of comb honey we have secured for a number of years. The quality is fine and sections well filled with nice ripe clover honey. We feel quite certain there will be a total of six thousand sections. Three tons of comb honey is a very good crop for northern Maine. We started the swarming season with 94 colonies, and were forced to increase more than we wished, so that we have now 160. Could we have kept up with the bees we might have had more honey and less bees.

The difference in colony behavior was never more evident than this year. The answer is not as easy as it would at first seem, but like Postum "there's a reason". Several colonies which threw prime swarms and had all queen cells destroyed but one, or a virgin queen, settled down and finished two supers of comb honey, a few three. That was unusual for here. One colony from which I had removed all queen cells and left a virgin queen, the seventh day after the prime swarm issued, were reinforced, an hour afterward, by a swarm hiving themselves in with them. Three supers did not seem to be enough, and I added a fourth and a few days later others until they had eight. I have taken off 168 finished full-weight standard sections and they have 56 more in different stages of development. While I think every colony in the yard has swarmed except one, some twice, and three times, this one colony has not, but has finished four supers and may finish the fifth. Apparently there was little difference between this colony and others which swarmed three times. In this one case, my guess is that the old queen was superseded and a young queen took over without swarming. But why did not others do it?

Other colonies which had been united and given an abundance of super room banked outside until the young queen had been laying several days. With many more bees than the colony making the record yield, others have made only half as much honey. In nearly every instance where prime swarms were hived on full combs in June they have swarmed out again, some without finishing a super, others after having two supers well along.

Will these different colonies repeat another season, under different conditions? I don't know and I wish I did. I shall try and rear a few queens from these outstanding colonies another season, if they are here, and I am here, but I may not do it. There may be too many things to prevent it, just as there has been this season, but I believe there is a fertile field here for some research work. "Like should beget like". There would certainly be improvement. While I have a strain of very prolific queens, carrying Carniolan, Caucasian, Italian and black blood, the swarming impulse is too strong.

Fair Hope Farm, Caribou, Maine.

REPORT ON LESPEDEZA CLOVER

Bro. Alphonse Veith, O. S. B.

We have two fields of Lespedeza clover. One field of about 15 acres lies three-quarters of a mile east, leaning towards the south and has sunshine all day. On this field I saw numerous bees on August 24. On the next day I visited the other field of about nine acres, one mile north on a high hill. Here not a single flower was to be seen. On September 8, I again visited the first field east, which appeared to be in full bloom and the bees were busy working thereon. On the same day I visited the other field north and this field was not as yet in full bloom. This field is bound by forest trees on the east and west. If I am correct, Lespedeza clover needs hot weather at the blooming period to yield nectar. During the hottest days the bees worked best and there was scarcely anything else for them to work on at the time. I think Lespedeza has its peculiarities, but with favorable weather it yields some surplus at a time of the season when nothing else is in bloom.

Since Lespedeza blooms in the latter part of the summer, at a time when bees would have to be idle without it, it naturally excites the bees to brood rearing and supplies the colonies with young bees for winter.

St. Meinrad, Indiana.

DAMAGE FROM STOCK IN APIARY

Walter H. Hull

The importance of a tight fence for the apiary, as recently recommended, is shown by the accompanying picture of what happens when cattle get into the yard. The picture is of a Virginia apiary as it appeared on the first visit in the spring. Actually the damage in this case was not as great as might appear at first glance. Of the two colonies that were upset, one had been robbed out. The other was in good condition and apparently suffered no ill effects afterward. Considerable surplus equipment—extracting combs and a few section supers—had been exposed to the weather but suffered no further damage, except one set into which a 600-pound steer had stuck his foot.

In this yard extracting had been done at the yard and supers stacked for winter above inner covers. Where there was no inner cover a thick newspaper was used. Although the supers would be better off stored in a dry room, this plan of stacking them on top of the hives is practical in Virginia, where winter packing is not often used. When extracting is done at the yard and no storage room is available,—especially if the yard is a considerable distance from home—stacking the supers on the hives may be the most economical plan, the increased depreciation being balanced by saving in cost of

When cattle get into the bee yard they can do a lot of damage. Even barbed wire did not keep them out of this yard.

A six-hundred pound steer stuck his foot into this set of extracting combs. Good beekeeping practice does not sanction steer's feet in bee hives.

hauling. But that saving would not cover breakage such as occurred here. The yard was fenced with barbed wire, which evidently is not sufficient. Stout woven wire would have given the necessary protection.

Bath, N. C.

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HEDBERG'S SHAKE SWARM

K. L. Hartshorn

When I read the article by Adjunkt Iver Hedberg in the October issue I thought it sounded very practical. I constructed the several articles, as mentioned, and put them to the test, preparatory to using the method next spring.

I had been called on to place an observation hive on display in Chicago. I had the hive, plenty of bees and a laying queen. She was still in a mating nucleus. I used Mr. Hedberg's method to get them together. I shook a half pound of bees, from a large colony, into the little screened box; then fed them all the syrup they would take. Three hours later I dropped in the queen. In the late afternoon I shook the cluster from the screened box, through the small funnel, into the observation hive. The next forenoon I saw the queen laying in her new home.

Although the observation hive was placed less than fifty feet from where the bees were taken, and the bees were shut in only over the first night, not a bee returned to the old hive.

I have proved to my satisfaction, that Mr. Hedberg's system is a great time-saver in starting nuclei in baby mating hives.

Chicago, Illinois.

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WHY NOT A DIXIE RENDEZVOUS?

Bruce L. Morehouse

On many winter mornings up here in Minnesota the thermometer registers 20 to 30 degrees below zero. The snow is deep and nobody goes out unless absolutely necessary. Blizzards, suffering from cold, and paying fuel bills are the constant round of the season. But it's the usual and expected to have long cold spells "up north" during January and February.

There is no use denying it—some of us, although we can "take it" would rather not. When we were younger we liked the cold winters, but now our blood runs slower, or sumpun', and we just don't like the extreme cold.

When we hear of some northern beekeepers spending the winters "down South" we wonder if ever we can, too. Oh, yes, it is a nice "dream" but besides our little daily round of chores there is the expense of such a trip—can we afford it? Well, maybe we can. Certainly some things cost less in Dixie than in Minneso-

ta, Michigan, or Pennsylvania. Fruit, for instance—those luscious citrus fruits! The coal bill alone would pay the transportation costs in many cases. The doctor bill might be thrown in, too. So, all things considered, maybe we can afford to go South for a spell.

But what about the children? There's the biggest "rub". No one can answer that for you—it is your problem. We can only suggest in such cases that they stay North with a friend or relative, or go to school in the South where you stay. There are many beekeepers who do not have this problem.

And what a satisfaction to escape the rigors of northern winters for the balmy breezes of somewhere—most anywhere—in the South! Just to bask in the warm sunshine, with nary a care for the moment, and soak up great gobs of whatever it is that rejuvenates us for the spring work that is to follow Oh, the joy to actually take that needed rest and vacation and give barely one fleeting thought to the discomforts we are escaping!

So, why not a "Dixie Rendezvous" for northern beekeepers where kindred souls may meet for the period? Certainly there are enterprising southerners who could arrange the needed hotel or camp accommodations, advertise their service in the beekeeping magazines and by mail, as "John Doe's Dixie Retreat"—to fill the winter needs that Minnesota resort keepers do in summer time. And what an enticing thing it would be if the accommodations could be linked with local southern beekeepers, where "the bunch" could fraternize, raise bees for packages, and so broaden their knowledge and beekeeping experience?

Hot dawg!—what a dream!—and why not?—why not a reality?

Minnesota.

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APIARY AIDS

The Observer

Hive covers present a problem when hauling bees. The regular outer covers are too heavy and do not load well. Inner covers alone are too light and would soon warp if exposed to the elements.

A commercial beekeeper in Iowa who makes increase in the South and trucks his bees North in the spring hit upon the idea of "block tops" for covers. The "block top" covers are similar to inner covers but are made of one-half inch material. They are covered with heavy roofing paper which in turn is secured to the cover proper by a frame-work of cleats ½" x 1" in size.

The "block tops" are handy in many different instances. Nailed onto the hives, they keep the bees dry and warm throughout the several hundred mile trip from the North to the South in the fall. (Screens are substituted in their place in warm weather.)

When a load of bees are taken to an outyard a bunch of "block tops" are thrown on the truck for covers, taking up very little room. They are distributed easily and swiftly about the yard. The regular outer and inner covers are brought out to the yard later. These "block tops" are "tops" with the originator; so much so that he has manufactured several hundred.

* * * * *

The best method I know of for marking an fb colony is to pencil the date of the year surrounded by a circle on the front of the hive. Such a mark should be on every super of the fb colony, also on the cover and bottom board. Stack infected material to be sterilized on cardboard strictly apart from other equipment.

* * * * *

I know a beekeeper who keeps a few discarded old smokers, veils, hive tools, etc., in a special locked box to be used only when dealing with fb colonies and equipment. Yes, he is careful and has reduced fb several hundred per cent in his yards within a period of three years.

* * * * *

When packing bees for the winter we place several sections of newspapers on top and part way down the sides of each colony just before the shavings and chaff are dumped into the packing case. The paper is inexpensive and we believe helpful in preserving the colony warmth.

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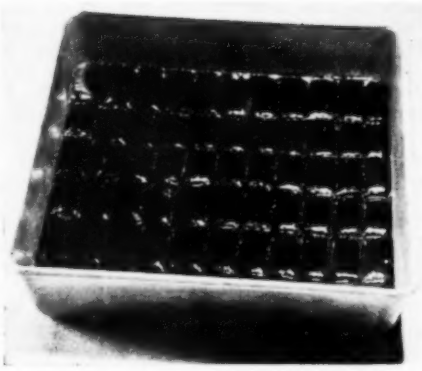
HONEY AND HOREHOUND FOR COUGHS

Benj. Nielsen

The season of coughs and colds is with us once more. If you are forty, or thereabouts, you are almost sure to remember the big bowl of onion syrup—the old family standby, immediately put into use with the first cold of the season; thick slices of odorous onions, a bit of sweetening,



Homemade honey and horehound candy is most effective for coughs.

packed tightly, topped with a protecting plate and a weight, more likely than not, the old flat iron. Then this potent concoction was set aside until the juice should collect in sufficient quantity to be administered to reluctant, cough-ridden sufferers. Remember?

Now-a-days it's a trip to the drug store for good "old-fashioned honey and horehound candy", which is equally effective and much more pleasant to take. We make our own, obtaining from the drug store a ten-cent package of pressed horehound, which will make several batches. We use a large pan for cooking, as the honey has a tendency to foam and boil over upon the cooking surface.

To make: Pour ½ cup of boiling water over 3 tablespoons of pressed horehound and let stand 10 minutes. Strain. Add ⅔ cup of honey, 1½ cups of sugar and ⅛ teaspoon of salt. Place over heat and bring to boil, then add ⅛ teaspoon of cream of tartar and continue boiling until the soft crack stage is reached. To test for "crack stage" drop a little of the mixture into ½ cup cold water. It should form brittle threads which soften when removed from the water. Remove from the fire, add 1 tablespoon of butter and ½ teaspoon of vanilla, stirring only enough to mix. Pour at once in thin sheet, onto well-buttered pan. Mark into squares or bars before the candy hardens.

Store in tight jar as it absorbs moisture readily and becomes quite sticky.

Aurora, Nebr.

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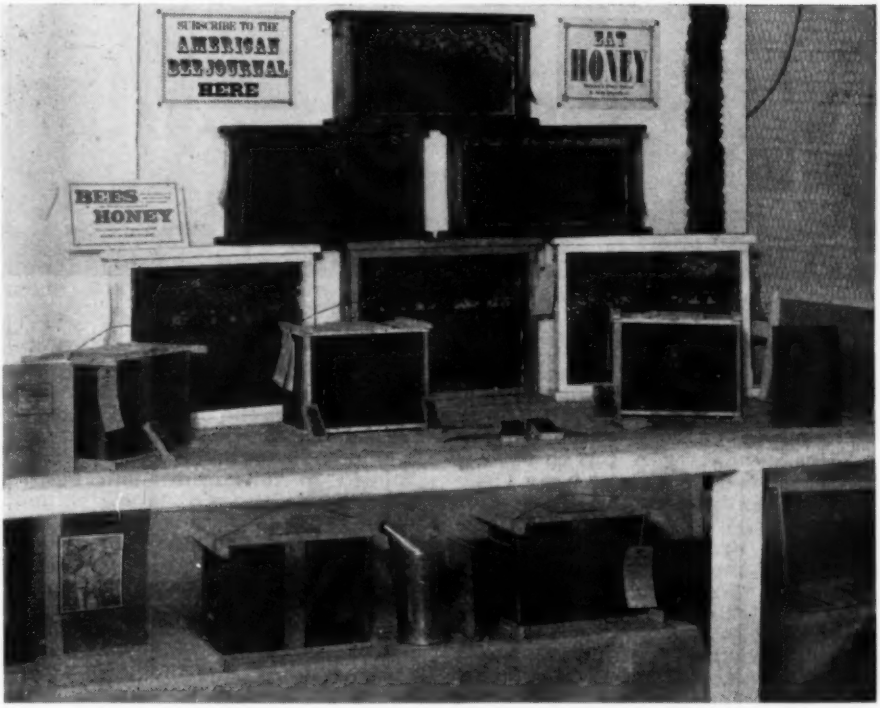
ALABAMA'S THIRD HONEY DEMONSTRATION

Thomas Atchison

The cooperative spirit which thrives in the hearts of Alabama beekeepers and bee breeders was given formal recognition when for the third consecutive year a honey demonstration booth was arranged during the Alabama State Fair held September 26 to October 1.

The exhibit and demonstrations were sponsored jointly by Mr. R. J. Goode, Commissioner of Agricul-

The honey cooking demonstration drew the ladies.

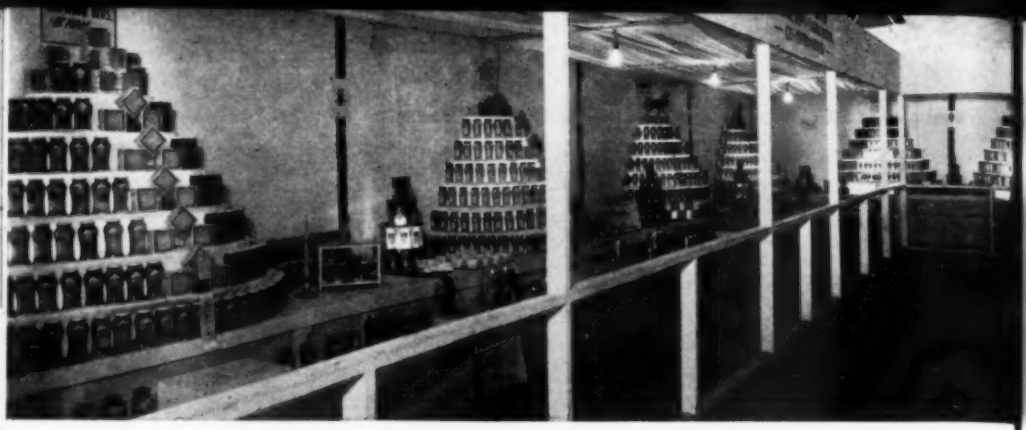


A good display of bees was a feature of the Alabama State Fair.

ture, and Mr. P. T. Strieder, Manager of the State Fair. Armour's, Birmingham Electric Company through their dealer, Flint Refrigeration Company, White Lily Flour Company, and Foremost Dairies, contributed to the program by furnishing tenderized "Star" Hams, Vegetole Shortening, White Lily Flour, Foremost Butter and Milk.

The demonstration booth was right across from the bee and honey exhibits and in line with the White Lily Flour and Armour Booths. At an angle less than twenty feet away was the Foremost Dairy Booth. This made an ideal set-up, for the visitors would first see the Butter Cow with Milk-Maid, pail in her hand (life size models of solid butter), hear the butter story; then to the Armour Booth to learn all about choice meats; next to the White Lily Flour Booth and have a hot biscuit. Then they came to the honey demonstration booth, hot biscuit in hand, to have honey from the Dripcut Dispenser efficiently dropped on the hot biscuit. As they stopped to enjoy their biscuit and honey, their eyes would catch the great variety of honey foods covered with cellophane and the next instant they were smelling the delightful spicy fragrance of gingerbread baking in either the Roasters or the Frigidaire Range. Hardly had the visitor finished asking about the gingerbread when she would note the tempting odor of the ham with the honey pocket and after numerous questions about this feature, would come the "always popular smell" of freshly baked cookies being taken from the oven by Rosa Lee, the colored maid. The combination was perfect for after hearing about good butter, certified meats, perfect flour, the visitor was most eager to learn what happened when all of these fine foods were combined with Alabama's honey. And when the opportunity actually came to taste the result, visitor after visitor would remark, "What a grand finale."

From early morning until late at night honey foods were prepared and distributed. Many questions on honey were answered. Due to a record-breaking attendance the work was continuous. Mrs. Malitta Jensen, Madison, Wisconsin, who has conducted our demonstrations for the past two years, was again in



When honey is well displayed it is a most attractive sight.

charge of this booth. She was ably assisted by Mrs. H. C. Short, Mrs. Hubert Norwood, Mrs. Jean Cutts, Mrs. R. T. Marshall and Mrs. J. P. McLaughlin.

These exhibits were put on by Hubert Norwood of Birmingham, Gene Cutts of Montgomery, H. C. Short of Fitzpatrick, W. E. Harrell of Hayneville and Bagby Bee Hall. These were the most beautiful exhibits that have ever been put on at the Fair, beautifully arranged and well lighted.

Besides demonstrating the use of honey, special classes were held for restaurant and colored cooks who had been sent by their employers to learn how to prepare the Ham with the honey pocket, the gingerbread with the honey lemon filling, and the many honey cookies shaped through the Swedish cookie press. Their employers had previously sampled these combinations and were anxious to have the quality and flavor duplicated in their home food services or restaurants.

After three years of serving as Superintendent of the Bee and Honey Department at the Alabama State Fair, I am thoroughly convinced that honey demonstrations of this character play a major part in obtaining for beekeepers everywhere increased consumption. Fairs in every state whether in the North, South, East, or West offer equal opportunities. Hams with honey pockets, honey gingerbread with lemon filling, honey cookies of all types and shapes have an appeal to the fair visitor. Because the story is different and unique, the visitor remembers it and I know from careful checking at many stores and markets that such a program is worth every dollar it costs.

Birmingham offers splendid opportunities as a honey consuming center. Visits to stores and markets during the past three years provide conclusive evidence of the increased consumption resulting from programs such as the one described.

Each year there are between twelve and sixteen carloads of honey shipped in to Birmingham besides the package goods that are shipped in by the honey packers. You will find the Land of Lakes Honey from Wisconsin in every grocery store in Birmingham. We have no way of telling how much honey is trucked in from Florida, Georgia, Mississippi, and Tennessee.

Alabama can never produce the amount of honey necessary to meet the demand of Alabama residents or guests. Producers in other sections are realizing that the market is there and more and more honey is being shipped in to our State.

Without their help and that of the commercial companies previously listed, our fine honey cookery program would not have been possible.

Montgomery, Ala.

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COMMENTS ON CURRENT ITEMS

J. F. Dunn

I was interested in Walter H. Hull's system of processing honey. We all have our own methods and it has occurred to the writer that a short description of the method we followed when running a honey stand might be of interest.

We placed enough 30-pound slip cover cans of honey on a wooden rack in the bottom of a galvanized iron tank to fill the double-jacketed heater. It was filled within 6 inches of the top with the tins of honey. When partly liquefied we turned off the gas and covered the top of the tank when the thermometer registered 130° F. In the morning the honey was about all liquefied or nearly so, and next evening on arrival home we turned on four of the

six burners and in about an hour the thermometer hanging in the honey would register 150°. We turned off the heat and the water in the heater would rise to 160 in about 30 minutes. We then pulled the honey gate and the honey would spread over a large sheet of glass leading to the jacketed filling tank which held about 550 pounds of honey. This was for our retail trade. The heating tank was the width of the large gas range with about 1½ inches between the double walls and long enough to hold the required amount of honey. We now use a smaller equipment.

Where is Ridgeway?

A lady wrote me a while ago asking, "Where is Ridgeway?" Look on any of the roadmaps. On the north shore of Lake Erie, and across the Niagara River from the city of Buffalo, N. Y., you will notice the Niagara River starts on its 24-mile journey to Lake Ontario. Up ten miles on the North shore is what is called the "Coney Island of Canada," Crystal Beach. Ridgeway you will find about 1¼ miles from "Crystal."

The Bumblebee

Mr. Allen Latham has given us a fine article on the bumblebee. There has been a scarcity of bumblebees in our locality in this Niagara District for a number of years. The red clover is not planted to any extent, in fact, that seed has to be imported but the yield of seed is very small. We have wondered if bumblebees get foulbrood. Who will tell us?

How to Smoke Bees

Mr. Shoemaker's article smacks of experience but he evidently has a cross strain of bees. With us, we use just as little snap as possible when removing the covers.

Scrape the top edge of the brood-chamber and the inner edge of the wooden cover clear of propolis, and grease the edges with auto grease or any sort of grease that will not get rancid.

A lot depends also on the strain of bees but in the average apiary of, say, 60 colonies there will always be a few queens that throw badly-tempered colonies. A lot depends on the beekeeper and his ability to judge when to use more (or less) smoke. There are certain varieties of smoker fuel that anger the bees and should not be used. The long red sumac "bobs" cannot be beaten.

Winter Packing

Packing for winter and the kind of packing to be used is a timely topic just now. In this Niagara district where the thermometer seldom registers zero, two inches of packing, such as finely cut straw or forest leaves not packed in, will bring bees through in good condition. The better the insulation the less stores will be consumed before brood rearing starts in the spring.

Upward Ventilation

Upward ventilation is an old topic and bobs up periodically. With both bottom and upward entrances a strong colony of bees will often winter in spite of the fact a draft is created that will pump the warm air out of the hive. If the space in the hive is reduced to the corresponding size of the colony the bees will take care of any moisture that may form in the hive. Several years ago when my friend, the late Mr. Armstrong, visited me, I kept a home apiary. A number of nuclei in double-walled hives were opened in early spring. The part of the hives the bees were not able to cover was filled with dummy frames giving the bees a snug nest in which to keep warm. The covers were of wood and sealed tight. Over the sealed cover was about 6 inches of papers and old magazines. There was no chance for heat to escape from the cluster. I took off the outer metal cover, carefully removed the papers, lifted the inner cover and there the bees were quietly clustered at the top frames. I am afraid my friend was disappointed in not seeing a lot of dampness and wet bees; but he exclaimed, "dry as a bone".

Beekeepers Live Longer

Prof. Anderson, lecturer at the University, says beekeepers live longer than other people.

I can say that is certainly true. And why not? The writer has attended many beekeepers' conventions, both Canadian and American, and has often noted the large number of people well up in their 80's, and some in their nineties. At one of the Chicago conventions the proprietor of the hotel said, "the beekeepers are the finest body of men that come to my hotel," but, sadly shaking his head, "there is no money in them". They didn't patronize the bar, you see.

Ridgeway, Ontario.

Editorials

Training Youth in Beekeeping Our industry needs more trained beekeepers. Universities that offer courses in beekeeping are helping to develop good beekeepers. Four-H Clubs are also doing some splendid work along this line. In a number of instances 4-H Club members with expert supervision have produced much larger per colony yields of honey than those secured by beekeepers over the state.

Many of the older beekeepers are passing on or retiring. There is a need for young aggressive beekeepers to take the place of these older beekeepers. Our industry must have more young efficient beekeepers if it forges ahead as it should in the future.

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Thou Shalt Not Bear False Witness Since the passage of the new Pure Food Law, as mentioned on page 568 of our September issue, it appears that Uncle Sam is now warning food concerns and purveyors of other products against making any false or misleading statements concerning foods or other products. Some large offending companies have been notified to be good and they have signified their willingness to change misleading statements on the labels of their goods.

Apparently the new law goes beyond the question of food and drugs. No misleading statements are allowed concerning certain brands of gasoline. Even dog food must come up to a certain standard and, funnier still, misrepresentation in the sale of lists of matrimonial eligibles in interstate commerce must be discontinued. The new law has teeth. T'is well.

The names of offenders and the charges in all cases are published in the American Bizarre, a publication which can be had upon the payment of $1.00. Write to 207 House Building, Pittsburgh, Pennsylvania. This publication carries no advertising and is therefore in a position to publish the names of offenders in good strong black and white, and it does so. It is high time that commercial lying should be stopped.

Marvelous Development of Beekeeping in Manitoba Those of our readers, especially Canadians, who have access to back volumes of Gleanings, will be interested in turning to page 311 of the May, 1884, issue to a short item entitled, "Honey crop of Canada for 1880, as per census."

The total honey crop for Canada in 1880, acording to this report was 1,875,745 pounds. The total production of honey in Canada in 1936, according to the monthly bulletin of Agricultural Statistics of March, 1937, was 28,241,000 pounds.

The honey crop for Manitoba in 1880 was 1080 pounds, while in 1936 the crop was 8,135,458 pounds.

For further details about the Province of Manitoba be sure to read the article, "Beekeeping in Manitoba" page 741, of this issue by L. T. Floyd.

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The Bee Sting Cure Again—Caution! Judging from the correspondence at hand, it is apparent that a good many beekeepers are going into the bee sting cure business, not knowing that anyone who attempts to go into this line of healing would be violating law. No one, not even a doctor, should attempt the use of bee stings in the cure of arthritis and rheumatism without knowing exactly what he is doing. A case came to our knowledge recently where a physician nearly killed his patient by administering too large doses of bee stings. No doctor, much less an ordinary beekeeper, should attempt to use bee stings or bee venom for the cure of rheumatism or arthritis without consulting a specialist, such as Dr. Bodog F. Beck, of 116 East 58th Street, New York City.

Possibly a beekeeper who has some form of rheumatism or arthritis might practice on himself, but even then he should act under the advice of a physician specially trained in this work.

Another thing to be made plain is that not every person suffering from the diseases mentioned can be cured

or benefitted by the use of bee stings even in the hands of an expert. Even Dr. Beck himself says that he cannot cure all cases.

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Don't Forget the League Meeting, Dec. 5-7 This is simply a reminder of the meeting of the American Honey Producers' League at Roosevelt Hotel, New Orleans, La., Dec. 5 to 7. We refer you to the program in detail that appeared in the November Gleanings, on page 717. Let's make this meeting worthwhile for our industry.

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Top Entrances, Why Some have Failed with them A chief cause of failure, if any, is in having the top entrance too large. Most of those who have tried it and succeeded, have confined the opening to a size not exceeding a half or five-eighths of an inch in diameter. In a very cold climate this small hole will fill up with frost crystals. As the weather turns somewhat warmer causing a surplus of warm air in the top of the hive, these crystals melt away. They will form again during a very cold spell, but will again melt away. Where the top entrance has failed, it is because the opening is too large. One case in point: A beekeeper turned his bottom boards upside down as covers. This left a slot or full-width entrance at the top. Of course, the warm air escaped and he lost the whole apiary. If, however, he had left the bottom boards in place, contracted the entrance to 2 inches by ¼ inch at the bottom, and put a ⅝-inch hole at the top, the result would have been different.

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Warm Fall Weather Favorable for Wax Moths In regions where the wax moth is prevalent the problem of keeping stored empty extracting combs free from moths during the late summer and fall months has been made more difficult this season because of continued warm fall weather. When combs are put in storage following the extracting of white honey in July or August it is necessary to treat them with carbon bisulphide or paradichlorobenzene to keep them free from moths.

Some piles of combs not treated were examined recently and found to be infested with moths. It would not be surprising if thousands of combs throughout the country are found to be riddled by moths late this season.

We suggest a careful reading of circular No. 386, "The Wax Moth and Its Control" issued in 1936 by Warren Whitcomb of the Bureau of Entomology. Send to Supt. of Documents, Washington, D. C. The price is 5c.

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Marketing Agreement has Teeth in it First, every shipper of bees or queens shall file with the Control Committee prices at which he will sell and he can not change those prices without first notifying such Control Committee of his intention so to do.

Second, there must be no secret prices, discounts or rebates to a customer, nor shall there be any misrepresentation or unfair practices of any sort. Package shippers will get the full import of unfair practices by reading Article VI of the new Marketing Agreement approved by the Secretary of Agriculture as of September 2, 1938.

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American Foulbrood, a Terrible Scourge Beekeepers might as well recognize first as last, that AFB is a terrible scourge. The various states in this country have been paying out thousands and thousands of dollars in attempting to save diseased bees by the shaking method and yet AFB has not disappeared, rather, it has increased. But, since the method of burning all infected material, **including the bees,** and scorching out the hives, has been put into effect, there has been a marked decrease in the disease.

This is particularly apparent in Ontario, Canada. E. C. Martin, Demonstrator of Apiculture, O. A. C., Guelph, makes this statement in the October Canadian Bee Journal:

"Periodically individual beekeepers or groups of beekeepers, forgetting the story of the past, want to do away with the present method of burning diseased colonies and go back to the old treating system. From the evidence at hand, such a step would be a great mistake. There is no doubt that, with our present knowledge, it is sound economy to destroy the bees and make increase from healthy stock. From the favorable results of the last few years'

inspection, it is not too much to look forward to the day when disease will be a minor consideration, provided, of course, that beekeepers always keep in mind what a serious menace it can be and do not forget what the past has taught them, particularly with regard to control measures."

James E. Starkey, State Apiarist of Indiana, also Secretary of the Indiana State Beekeepers' Association, in his monthly letter of November, 1938, in writing under the caption "Does Treating AFB Ever Pay?" makes the following statement:

"More and more beekeepers are coming to the conclusion that it never pays to treat AFB colonies,—that it is safer and better in every way to gas the diseased colonies and burn at once. Only one beekeeper, of all the beekeepers called upon by the writer this season, treated. The rest preferred to burn all their disease. However, in some areas beekeepers still choose to treat AFB colonies, although this is being discouraged by the inspectors, also by those who have tried treating and have given it up as a failure."

It is very apparent that letting beekeepers do their own treating by shaking the bees onto frames of foundation in the hope of saving the bees, is a very serious mistake and the sooner that old plan is abandoned, the better it will be for bee culture throughout the United States and Canada.

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Is the Coming Winter to be a Cold One? Some scientists say it will be a cold one. How do they know positively? They don't know. The Weather Bureau, as everyone knows, is able to forecast weather conditions for a week ahead, but no one, so far, has been able to make accurate predictions for a month, six months, or a year in advance. At least, this seems to be the general verdict, but some things seem to indicate that there is a relationship between the sun and the earth. It was believed at one time that the temperature of Old Sol was the same, year in and year out. Dr. Abbott of the Smithsonian Institute at Washington, D. C., a graduate of the Massachusetts Institute of Technology, when he went to the Smithsonian, was assigned to the job of studying solar radiations, then supposed to be a constant quantity. It should be remembered that our sun is in reality a star. Dr. Abbott has found that there is a variation of 10 percent in its output of energy. When the sun is delivering its least amount of heat, there is a corresponding reduction in the temperature of old Mother Earth.

Dr. Andrew Elliott Douglas, of the Percival Lowell Observatory at Flagstaff, Arizona, has been making a special study of weather conditions covering a long period of years. There are no records going back beyond a hundred years. Dr. Douglas has been studying the rings of very old trees, and finds that during dry periods the space between the rings is very narrow; during a wet period, the reverse is true. One remarkable thing which he has found is that weather conditions seem to recur in cycles of eleven years, corresponding to what Dr. Abbott finds in the relationship between the earth's heat and the sun's heat.

We beekeepers know that we have had a recent period of dry weather conditions up until this year. Now it is predicted that the reverse will be true and that there will be moisture and colder weather for the next eleven years.

Beekeepers are interested because in dry years there is usually a scarcity of nectar. When the reverse is true, with enough of sunshine in between the rains, there should be honey crops. According to this eleven-year cycle, we have experienced in the United States a year when there was more honey produced than usual. Now the question is, shall we have a cold winter with a large amount of snow that will soak Mother Earth and give us clovers and a variety of honey plants, covering a period of possibly eleven years, or until conditions are again reversed?

The reader must understand that the editor is making no predictions. He only states what has appeared in some magazine articles and is presenting the evidence in favor of the eleven-year cycle for what it is worth. Unfortunately there are no reliable statistics or records showing yearly honey flows for the United States, covering a long period of years. Mr. Harold J. Clay, of United States Government Market Reports, gives a honey crop estimate, beginning with the year 1929.

From North, East, West and South

SOUTHERN CALIFORNIA, Nov. 3.

Weather: Another month has gone and no rain yet. Several times lately the weather turned cooler and the sky became clouded over only to clear up and leave us disappointed. Some are predicting a dry warm winter. The best way is to do our part for Nature will carry on just the same. No one can complain about the soft balmy weather we are having.

Honey Crop: The 1938 honey season is a thing of the past and a considerable part of the honey has gone to market. November will see most of the remaining honey move from the producer to the broker as few beekeepers care to hold after the Holidays feeling that there is usually a slowing up in the demand around Holiday time.

Market: Little can be added to our last letter. Brokers will buy but as for demand, little can be said to encourage the beekeeper. With the unsatisfactory prices the farmer and fruit grower are getting, well, we have a product that will keep until we want to sell, which is some satisfaction at least.

Beeswax: Last winter we were offered 24c for beeswax. We hope that this winter prices may be the same.

Miscellaneous: Careful observance of existing laws when moving bees may save beekeepers much inconvenience in future operations. Migratory beekeeping has become so much a part of the business that we as beekeepers should draft a set of unified rules that could be incorporated into a national law governing the moving or shipping of bees from one state to another. In plain English we should have our business up-to-date.

There seem to be two lines of thought in the solution of the beekeepers' present problem, to wit, the securing of a profit in the business.

One line of thought leads to the reduction of costs in production, the other to the securing of a higher price for honey. To secure the last-named the only way seems to be in educating the people in the value of honey as a health food thereby creating a greater demand, in other words, advertising.

In the reduction of expenses the uses of short-cuts or labor-saving methods or devices seems the most promising.

Some of the large producers instead of using the single-comb method now use what they call the super method. Instead of taking out one comb at a time when examining the condition of the colony or removing the surplus honey, lift the front of the hive, or super as the case might be, drive the bees back with a little smoke, separate the combs at the bottom and glance upward which in all normal colonies is enough to show the condition. In removing surplus a cloth with acid is used to drive the bees down when the full super of honey is removed at one operation. This is just a little speeding up in the amount of work that can be accomplished in a given length of time.—L. L. Andrews, Corona, Calif.

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NORTHERN CALIFORNIA, Nov. 6.

Weather: The territory we call Northern California in Gleanings covers half of the state, and we can boast of every kind of climate in the Union, and this includes Alaska. Not as much of any kind as some other place can boast of, or complain! Here in the Bay region we have almost the same kind of weather the year round. Our dry weather is in summer and our wet in winter. Even the rainy weather is not disagreeable, for it usually rains at night and the sun shines throughout the daylight. We seldom see frost and in the past twenty years we had a snowfall, enough to cover the ground with a coat of white. We made a snowman that lasted three days and we have talked of it ever since.

We have our first rains and the green grass is springing up everywhere. Gardens are being made. A few miles away the fields are dry and barren, and then come the mountains covered with snow.

Honey Crop: Over all of this great expanse of country we can find beekeepers, for our bees produce honey at an elevation of 8,000 feet or more. The honey crop of 1938 is in the can. While there is a great variety of reports of the amount produced, each of us produced some. Though the reports read from nothing to 150 pounds per colony, there are few reports of starving bees. Our commercial beekeepers are rapidly learning that it pays to have young queens with plenty of pollen and plenty of

stores for the winter. Such conditions guarantee good prospects in the spring.

We have heard of some beekeepers who actually have money in the bank. A young beekeeper came to our office the other day to tell us he had a crop that allowed him to buy a new automobile, a new truck, and a balance in the bank. This is a good report, one that pays well for other beekeepers to copy.

Market: The past month has given us some reasons to hope for a better market for honey. With the effort beekeepers are making to improve on methods of care in preparing honey for market, the future actually looks brighter.

There is little beeswax in the hands of producers. The price is too low, but with the efforts beekeepers are making to produce a better quality, there is still hope for better prices.

Miscellaneous: With the harvest in the can or the money in the bank, we can turn our thoughts to the annual convention of our fellow workers from all portions of the state, and anticipate with great pleasure meeting old friends again and making new ones. Word comes to us from many sections that a host of beekeepers will literally swarm to Santa Barbara in order to participate in the discussions and deliberations that will mean so much to every beekeeper in the state. And we wish to extend a hearty invitation to our neighbor beekeeper to join with us and profit by the educational and social advantages of the convention. And bring the wife along, too, for more and more ladies attend these conventions every year in order to enjoy a vacation trip and to add their influence to the Women's Auxiliary.—Cary W. Hartman, Oakland, Calif.

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WYOMING, November 8.

A Suggeston: At this season of the year the beekeepers' most urgent need is better demand for his product at a fair price. **The butcher,** the baker, nor the candlestick-maker are not going to do much to create a demand for honey; the push will have to come from within the industry. I have just read Doctor Beck's 272-page book "Honey and Health" and the first question to come to my mind was, what percentage of Honey Producers have purchased a copy of this first complete recognition of the food and therapeutic value of HONEY to come from the medical profession in modern times. A wide circulation of this wonderful book would abolish five cent honey, and soon take the beekeeper out of the debtor class. So far I loaned my copy to three different interested families and sold another copy to one of our State officials. If each of the "800,000" beekeepers in the U. S. would do even this small amount much would be accomplished toward awakening the public apathy toward HONEY.

Weather: Wyoming has enjoyed the most beautiful fall weather on record. Killing frosts did not strike until after the first week in October, a full month later than normal, and temperatures reached the unusual high of 80° during the month. November changed all that with snow and zero weather. Moisture has been very scant since July, so a winter with considerable snow will be helpful, both to honey plants and the wintering of bees.

Honey Crop: Possibly this year's production is slightly better than last year, but the crop was spotted as has been the case for several years. So far as Wyoming is concerned there has been no occasion for deflating the price below cost of production.

Honey Market: Sales are about as good as last year, but at prices a little lower than last year. Considerable out-of-state honey is brought into Wyoming, where the per capita consumption is way above average, which is one factor, but the principle trouble is the "recession" which is hanging on doggedly. Wool, sheep, and cattle markets are depressed, but gasoline remains 5 or 6 cents above neighboring states, and our prohibitive L. C. L. freight rates have recently been raised 15%, so we have some phases of prosperity, which will probably be augmented by today's election.

Miscellaneous: I dislike to close with a tinge of blue. The heavy rains of the early summer in the northern part of the state put the rollers under the grass hoppers and crickets which have ravaged that section for several years. That's one bright spot. But the noxious weed situation while possibly not getting any worse under the control measures being used is still a serious problem in some counties and will likely require heavier expenditures for complete eradication. Quarantine regulations are now in effect in many localities on hay and grain to prevent further spread. Bees went into the winter in good condition, with tar-paper packing the most popular. Honey plants have suffered a lack of moisture but a snow blanket will bring them through in good shape for another hopeful spring.—Earl C. Reed, Mountain View and Ranchester, Wyo.

SOUTH LOUISIANA, November 2.

Weather: This fall season is upholding the year's record of perfect beekeeping weather. Just three chilly days so far when the thermometer dropped below 60 degrees, so the bees are busy working on goldenrod and putting the finishing touches to what has been a splendid year for this section of Louisiana.

Honey Crop: We are harvesting the best crop on record in this immediate vicinity. One flow followed another in such rapid succession that the scale colony gains have been practically uniform since May—only in October did we have a lull owing to frequent light showers which cut off the yield from blue vervain, which yields best in dry weather.

Markets: The wholesale market is about as usual, ready and willing to take all local honey which is offered by the producers—but there is the usual dissatisfaction about the prices offered. While this year's honey is much lighter in color and very uniform in weight and flavor, bids run as much as 2 cents below last year. This may be unwarranted but many men are selling at these figures. Demand for bottled honey for the retail trade is normal.

Miscellaneous: It may be all right for the Government to buy up the temporary surplus of perishable foodstuffs for free distribution, but when this activity is extended to cover non-perishable staples and luxuries the proceeding is open for debate. Numbered among these debatable activities is the movement to have the Government buy and give away some honey. It is needless to say that the price which will be paid for such honey will have to be low and it is also a foregone conclusion that the honey will have to be accumulated in large quantities at some central distributing points. This means that the producers will be paid as little as possible and that this low price will set the market FOR ALL HONEY. The men who attend to the job of concentration of the large lots will have to be paid and the freight charges to the distribution point will also have to be deducted from the returns of the producer. We will not even have the satisfaction of "making more honey eaters" as people seldom appreciate that which they get for nothing.

Honey is practically a non-perishable product and need not be sold in a hurry. Look over Mr. Clay's market summary and you will note that no state produces as much as five pounds of honey for each of its inhabitants, so, a little bit of patience and another bit of marketing ability should enable any producer to dispose of his production at a fair price. If our honey is indeed a luxury like caviar, let us appraise the public of this fact and we may also get $1.50 a pound for it.—G. W. Bohne, Luling, La.

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TEXAS, November 1.

Weather: During October the weather was adverse to beekeeping. The increasing drouth reached a point by the first of the month where not even the drouth-resisting composites could have bloomed. The temperature and light conditions were such that the fall brood rearing was heavy, the lack of pollen and nectar coming from the field made it necessary for the bees to use much of the winter stores. As a result many colonies of bees are in first-class condition. So far as can be found there was no honey flow which amounted to anything at any point within the state. Beekeepers who moved to the Kinnikinnik (Rhus virens) on the Edwards Plateau for the fall flow were disappointed as the lack of moisture did not allow this plant to bloom. It is to be said that over the most of Texas the deficiency of rainfall up to the present time is about 20% below normal, while the heat and light conditions are above normal.

Honey Plants: The condition of the honey plants is still good. Most winter annuals have as yet made no appearance; however, during November and December there is ample time for all of the annuals, especially horsemint to appear in great quantity, and for mesquite and other desert shrubs to make preparations for the spring bloom. The long-time beekeepers are of the opinion that as guajillo and catsclaw are not in flower this fall that the blooming period next spring will be prolonged and the prospect for a honey flow is good.

Market: The supply of honey in the hands of the producers is being rapidly reduced by transient assemblers. The prices vary in proportion to the distances from railroads, the quality, and the amount of honey offered. Numerous inquiries are being made but most of the beekeepers are holding the remnants of the 1938 crop against a need for feed next spring.—H. B. Parks, San Antonio, Texas.

MANITOBA, November 9.

Weather: The weather still continues mild with no ice on the rivers. Never since I came to Manitoba has the summer stayed with us so long.

We had this unusual sight this fall. Roots of such plants as dahlias and cannas in the Government gardens were dug with leaves and flowers still bright and green. It still continues dry.

Honey Crop: The questionnaire was mailed out on Oct. 15 and about five hundred reports are in. A preliminary report will be made next week and probably will show the largest crop since 1933.

Markets: Sales are slow. The continued warm weather has not been favorable for consumer demand. Small producers seem to be pretty well sold out but there are plenty of carloads still looking for a market. Export demand has taken about fifteen carloads counting those shipped and others sold but not yet delivered.

Advertising: We have found a much keener interest in exhibiting this year. This was stimulated by the Federal Government when they sent out a request for samples for the Imperial Fruit Show in Bristol, England, and continues on into entries for our Royal Agricultural Fair at Toronto next week. The winning of prizes is not the only gain to the industry derived from this work. All cannot win prizes but plenty of entries are bound to attract attention.

Miscellaneous: Bees are reported as well supplied with stores and perhaps more bees will be wintered than usual. In many districts, however, the dead bees lie in heaps like manure piles and give off an odor quite different from clover blossoms. Many letters come in from happy beginners who look forward to wealth in a new found occupation. By next fall, their enthusiasm will probably wane but while it lasts the inspiration is contagious.

I wonder how many beekeepers have grown the plant called Cleome, or Spider Plant. On a visit to the country I visited one beekeeper who this year grew ten bushels of the seed. He told me he plans to put in ten acres next year for no other purpose than to supply pasture for his bees. He said, "You should see them working it at five o'clock in the morning when this plant is in bloom".—L. T. Floyd, Winnipeg, Man.

NEW JERSEY, November 7.

Weather: I just overheard two farmers talking on the street. One said to the other, "I always claim a good start makes for a bad finish." They were talking about the weather. As far as fall weather is concerned we are going into winter with a good start. Although we have had frost on several occasions there has been no real damage of any extent so far. The past few days have been almost spring-like, and today, although cloudy, the bees are flying and are visiting the few odd dandelions and white Dutch clover blossoms that are still in bloom.

Honey Flow: As there was no frost damage to the fall flowers and, in addition, the weather conditions being practically ideal at the time, the honey flow was both long and heavy. Reports vary but for the most part it seems generally agreed that this was the best fall flow in many years. All things have their disadvantages and one disadvantage of our fall flow is that the cool weather is not favorable to comb building or to super work even in drawn combs if the space to be occupied is too great to keep warm. The result, especially in a heavy flow, is that the brood nest becomes filled with nectar to such an extent that the young bees, so much needed for the winter cluster, just can't be produced. This is a bad start that tends to make for a bad finish and is rather general this fall. Favorable aspects to the situation are, that due to much swarming this summer, young queens prevail and also much pollen is on hand.

Market: As compared with other states there is no real marketing problem in New Jersey. The population in the New York and Philadelphia areas consume large quantities of honey of which New Jersey's share is only a part. Beekeepers with business ability and good honey apparently easily dispose of their crops (and others, too) at satisfactory prices.

Miscellaneous: A new beekeeper's organization has recently been formed in this locality. The beekeepers of Rockland County, New York, and Bergen County, New Jersey, in joining together have called themselves the "Rockland and Bergen County Beekeepers." The secretary is Mr. John Hopf, Jr., of Spring Valley, N. Y. and the president is Mr. Wm. A. Kinsley, of Westwood, N. J. Monthly meetings are held and interested beekeepers are welcomed.

The next main event for New Jersey

beekeepers will be the annual meeting of the State Association to be held in Trenton on January 26. Local beekeepers will speak on "Migratory Beekeeping in New Jersey", "Cut Comb Honey", and "Ground Rent for Out Apiaries."

Dr. Phillips is to be the main speaker and an opportunity of hearing him will be welcomed by many. The evening program will feature a honey banquet and an address by Dr. Phillips. All considered the meeting as planned should prove not only interesting but worthwhile to all classes of beekeepers.—John Conner, Caldwell, N. J.

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IOWA, November 7

Honey Flow: I think I am safe in saying that the past summer has been a happy surprise for most beekeepers in the eastern part of the state. Very few thought when the bees went into winter quarters in the fall of 1937 that there would be such a wonderful crop of white clover.

Just how this happened I am unable to say, but happen it did, and in all of my experiences I never saw such a profuse bloom, with but one exception. The flow lasted well up into August and the beekeeper who had his bees in condition for the flow reaped a bountiful harvest of excellent honey.

There has been some conflicting reports as to yield. Some claim there was no honey in the bloom. Others only a few miles away claim some colonies gathered approximately 300 pounds. My guess is that in cases where no honey was gathered the fault was with the bees, or, should I say, the beekeeper. The spring was a poor one for brood-rearing. Bees gathered practically nothing from fruit bloom and dandelion and it required some help from the beekeeper to remedy this situation if the bees were to be up to par by the first of June.

Market: There is being offered on the market some very fine honey and it is selling at very reasonable prices. Extracted is selling in the smaller towns at 50c per 5-pound pail and 90c for 10 pounds; comb honey from 15 to 18c per section. This price is slightly lower in the larger towns.

Miscellaneous: Bees should be looked after carefully this fall to see that they do not run short of stores before spring. The fall flow was none too good and the very warm weather we have had all fall up to November 5th has no doubt stimulated brood rearing to the extent that it may and likely will, cause some colonies to run short of stores.—W. S. Pangburn, Center Junction, Iowa.

INDIANA, November 7.

Weather: An abundant rainfall continuing throughout the summer months and early fall has resulted in a luxuriant growth of white clover, but the drouth and abnormally high temperature during the last few weeks may have put a crimp in its development. Next year's crop is, of course, uncertain, and it may be well to hold over some of that good clover honey rather than to dispose of it at present low prices. We seldom get two good clover crops in succession.

Honey Crop: The clover flow has come and gone. Not as much honey as expected but enough, perhaps. Enough, at least, to induce many to dispose of their crop at less than cost. It seems that only bees and beekeepers are willing to work for nothing and board themselves.

The fall flow was only about 25 per cent of normal in this locality, owing to adverse weather during the peak of goldenrod bloom. Heartsease flow also was light. The fall honey this year is unusual in that it is almost as light in color as honey produced from clover. In other words it is an extra light amber and of fine flavor.

Miscellaneous: Most colonies are well supplied with winter stores, largely aster. We find it advisable, however, to weigh all doubtful colonies before putting them in the cellar, adding a shallow food-chamber where necessary. No bad results have been noted in the past from the use of aster honey as a winter food and losses have been negligible.

Extracting is finished for the year by most beekeepers, as they prefer to get the work out of the way before cold weather, but there are some hereabouts who claim that they "extract all winter." That is, they depend on warming the combs and extracting a little at a time as they find sale for the honey, thus avoiding the trouble of melting after granulation. Doesn't look so good to me.

AFB in this county apparently is on its way out as nearly all beekeepers now realize that burning is the most effective remedy and are willing to co-operate in its extermination. For many years I have accompanied the state inspector on his rounds and find a friendly attitude and a desire to learn on the part of most of those who keep bees.—E. S. Miller, Valparaiso, Indiana.

XUM

VERMONT, November 5.

Weather: As perhaps most folks know, New England was visited by a tropical hurricane in September. We had very little wind damage on the west side of the Green Mountains but considerable flood damage in villages and roads in and near the mountains. The east side of the state had much damage by the wind especially to standing timber. Many millions of feet of lumber was blown over. Maple orchards were especially hard hit and will no doubt make quite a dent in the state's syrup output for years to come. It takes 40 to 50 years for a sugar maple to grow big enough to tap.

We had lots of moisture in September. October has been dry and unusually warm. While we have had some heavy frosts in the past two months, we had almost summer weather to pack and feed our bees. The lowest temperature so far was 25° and no snow except on top of the mountain.

Honey Crop: We have about 50% crop this year of good quality though a little darker than usual. Sales are holding up fairly well.

An encouraging sign is the abundance of clovers in meadows and pastures this fall. The September rains have given them a good growth. All we need now is lots of snow and a cold winter which is almost a sure sign of a good crop next year.

Miscellaneous: On page 704, Mr. Anderson mentions the difference between yellow and black bees on the amount of honey in their hives in fall. This difference is very marked here as we have almost no fall honey flow. As a rule, yellow bees are on the verge of starvation the middle of September. Dark bees, especially Caucasians, will have 20 to 40 pounds of honey stored away in the very same yards. With a large number of colonies, it makes quite a difference in the feed bill in the fall.

In another couple of weeks we'll start our winter "vacation" by going deer hunting. Six years ago I got my first deer, the first time I went after them. Folks all called it beginner's luck, and every fall since I've tried to prove it wasn't, without success. The talk is that deer are quite plentiful so this year I'll have to show the boys how I did it.—Charles Mraz, Middlebury, Vt.

FLORIDA, October 25.

Weather: October was ideal, with warm days and cool nights. The rainfall has been sufficient to put the fall bloom in the pink of condition.

In northwestern Florida the weather had been very satisfactory for late summer and fall producing plants. We had only two weeks in July when the bees did not gather some honey.

Honey Crop: While no record crop was produced, the entire state had a fair crop. The only plant to fail was black mangrove. The cabbage palm produced a surplus. This honey is not supposed to be of the best quality, but this season it was an exception.

Goldenrod and late fall plants are good. Prospects in most locations are very good for winter stores from these sources.

This morning bees in the home yard are falling in heavy with nectar. How long this will last is uncertain, possibly only a few days, but we hope longer.

In northwestern Florida titi and tupelo both gave good crops. The latter was of extra fine quality. Summer plants, such as white pursley and velvet beans, have been yielding fair but not as heavily as last year. Most colonies have sufficient for winter at this time and are extra strong in bees and brood.

Market: Sales have been mighty slow. Wholesalers are not offering a living price in many instances. About 6c per pound for the better grades packed in barrels seems to be the average price. Retail prices are holding about the same as a year ago and will begin picking up as the weather gets cooler and the tourits begin to come.

Miscellaneous: Most of the state, except the southern part, has this year's crop extracted and if a fair price can be gotten beekeepers will be set for winter. With ample stores for winter this should mean good colonies for the orange flow next spring. But will it? With low offerings on honey there is sure to be more left for the bees than usual. It would be foolish to extract the lower grade at prices being offered and run the risk of starvation before spring. Insufficient stores is one cause of no surplus from the early blooming orange.

With the good crop in the North the past season we hope to see more of our Northern beekeeper friends this winter than usual. And I must say that we enjoy having them. I wish to extend an invitation to all of them to visit me while here this winter. My home just off South Boulevard is easily found.—N. Forehand, DeLand, Fla.

ONTARIO, November 7.

Weather: Figures released from the Toronto weather observatory state that October was ten degrees warmer than the average, and most of us living in Ontario will be surprised that the average was not higher. Today, the sun is shining brightly and I have just come in from the mink ranch after spending an hour or two there in my usual summer attire—no coat needed, I can assure you. On every day in November so far, bees have been observed bringing in pollen. What the source is I do not know, but possibly from aster and some dandelion blossoms that are noticeable in southern exposed spots. Yesterday a friend was telling me that they have been bringing in a few strawberries during the past few days. Friends in southern localities who think that Canada produces nothing but snow banks please take notice ! ! !

While this six weeks' spell of southern weather is delightful, after all it is not seasonable for Ontario and I do not like to see the bees bringing in pollen at this time of the year. While I have no positive proof to back the assertion yet I feel that brood-rearing will start in many colonies and stores will be used up. However, we cannot help the aftermath so will enjoy the balmy weather while it lasts. Our boys, along with many others, are in the Highlands of Ontario on their annual deer hunt. If they get any game and this weather continues for the next ten days, quite possibly we may be able to cater to our friends who prefer their venison "high".

Personally, I do not like it that way so my share can go to those whose tastes are more aristocratic.

Of course, this long spell of very mild weather has given all the beekeepers lots of time to feed and prepare the bees for winter. Ours are all cared for, but if I had known that we were in for such a long spell of warm weather so late in the season, much of our feeding would have been delayed. After many years of observation I am convinced that good strong colonies can be fed as late or later than November 1 with better results than a month earlier. This year feeding could be done now, even though we are well into November. During all this fine weather we have had practically no rain and that naturally means scarcity of water for the farmers and hard work in plowing clay soils. But with lots of moisture in August, fall wheat and clover got a good start and for the first time in my experience I notice farmers are pasturing their fall wheat as the growth during this unseasonably mild weather has been so rank.

Prospects: Prospects for next year insofar as the beekeeper is concerned, while fair, are not so good as a year ago. Alsike and white Dutch look fair but in all of our locations there will be but little sweet clover next season. The abnormally wet season of 1937 brought on sweet clover where the seed had been lying for years. Many left sweet clover for seed this year and the price is so low that we cannot reasonably expect much to be left for seed next year.

Market: Demand for honey has slowed up as might be expected with fruit plentiful and very cheap. But as intimated in former issues our local sales have been the heaviest for all time. Have just been looking over the honey still on hand and find that we have but a few hundred pails of clover left and about 30,000 pounds of buckwheat, and the store room looks bare as compared with a few weeks ago.

In Toronto a few days ago I noticed in the window of one of our well known chain stores, placards offering No. 1 clover honey at a price lower than any we had sold for in a wholesale way. Curiosity prompted me to see this honey and ascertain who the producer was. Much to my surprise I found it came from a firm that is well-known all over the country. It is none of my business I suppose what they sold the honey for at the store but for all that I did wonder what the producer got for the honey. Inquiry at wholesale houses showed that movement of honey was slow. I actually saw at one place a shipment that the wholesale merchant was paying more for than the chain store I have mentioned was selling for at retail.

By the time this is in print the Ontario Convention will be a thing of the past, and another year will be just around the corner.

In the last Gleanings I remarked, if I remember correctly, "how time does fly" and this morning when surveying our almost vacant honey room it seemed but a few weeks since such a survey was made in the fall of '37, and since then the room has been crowded and almost emptied again. Such is life and when we are in our teens and having day dreams of the future, we are impatient because things seem to move so slowly. What a contrast as we get older when a week slips by about as fast as a day did in our youth.—J. L. Byer, Markham, Ontario.

Heads of Grain from Different Fields

Can Bees Read?

Last April I was walking on the Cornell Campus when a bee came down close to the sidewalk, evidently seeking a rest from the strong wind. It approached to within a foot of a large sign painted in white "No Parking", arose and flew about sixty

This colony netted Rev. McKee $82 this season.

feet and again hovered above this and some dozen other signs and then in disgust (I suppose) flew away to the apiary. This bee could not only read, but was somewhat of a philosopher, too. She wasn't going to take any chances of drawing a parking summons. Perhaps she knew what the writer knows from personal experience—that the Ithaca boys are pretty liberal with their tags, whether you deserve them or not.—Rev. J. E. McKee, Alpine, N. Y.

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A Beekeeper Told It

Some years ago a beekeeper of one of the southern states found it getting too hot for him, and the heat was not of the kind transmitted by the sun's rays. He migrated to a western state and camped out not too far from some good apiaries. The owner of one of these apiaries visited it one day, found the bees storing honey nicely and decided that the following Saturday was the right day for the first extracting of the season. He gave the necessary directions to his son and a helper and planned to spend the day in the apiary himself, getting off the crop. At the last minute, however, the owner found it necessary to run into town on business, so he sent the two younger beemen to the apiary to start work. An hour or so later, while on his way to the apiary, he met his son and the helper on the road returning home. They assured him that the supers were entirely empty and that he had been mistaken about it being time to extract. But the owner recalled vividly the eagerness of the bees in bringing in nectar a few days before and could not believe the boys. They all returned to the apiary, the boys to show the old man that they knew when there was honey to extract. Surely enough, the supers were empty. Just about the time that the owner had been convinced of his error in judgment, a neighbor dropped in to pass the time of day. The owner reported his disappointment to the neighbor. The neighbor was no beekeeper, yet he did have some notion of the frequency with which one might legitimately expect to extract honey in an apiary, so he said, "What do you expect? Your hired man came here yesterday, traded empty combs for all the full ones and hauled the honey away." The beekeeper formerly of one of the southern states soon moved to a new field of action.—A. N. Onymous.

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A Handy Feeder

Sometimes a novice stumbles onto something new. The handiest feeder I can find for package bees is a two-quart fruit jar with holes punched in the lid, and set on two little sticks, over the hole in the inner cover, with an empty super under the outer cover. I can see at a glance how much feed there is, and the jars can always be had.—J. H. Pease, Cedar Rapids, Iowa.

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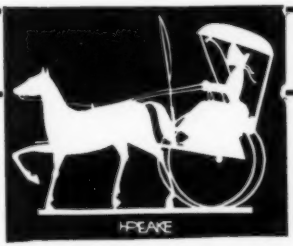
Amber Honey

I think Grant D. Morse is quite right about amber honey. In my locality water white honey would not sell well. I would be accused of feeding my bees sugar syrup. Honey must have color as well as flavor to sell well here.—W. E. Bumgarner, Marshfield, Mo.

Spinster



Jane Says:

It is blowing a gale, outside, and all night long there was a downpour of rain to accompany this same gale. What dismal weather November can hand out! This year, up until now, she has smiled upon us in a balmy Indian Summer, the real thing, right on schedule time. In looking at our hills, and wooded valleys, noting the denuded trees, I was forcibly reminded of a bit of poetry I once used in beginning an Indian tale. It was this:

"When the Indian Summer skies,
Paint the woods with wampum dyes."

Knowing the Indians' love of color, I think our seasons must be vastly changed, or else the poet who wrote those lines didn't know what he was talking about. Whoever saw bright colors in our woods in November?

One wonderful thing for beekeepers, the bees were able to fly so late, they should winter well.

I've often thought about that winter cluster, centered by a beloved queen. Is it not typical of home relationships? The mother, surrounded by her daughters? The cluster generates heat, their little bodies living dynamos. The family generates a warmth of love and good cheer,—if an ideal family. And what does the humming denote? Is it muted conversation? Is it gossip? Is it an exchange of confidences? Or is it the happy song of contentment? I like the last idea best. After a season's harvest, safely and well garnered, after weeks of hard ceaseless toil, comes joy and the winter rest.

Winter should be a time of rest for women-folk, too. Too bad we have no wings. We, too, might generate heat, if we had, and save bringing in coal and wood with their dust and splinters to clean up.

Should we not keep at home, knit, sew, read, rest, and sing,—rest and fit ourselves to do still better work in the coming year? Why was winter given us, if not for that reason?

I did admire the man bold enough to wish to sleep upon a bee hive. I, too, enjoy the bees' lulling musical hum, but not quite that much. Bee-hives are small, and what if one should fall off? Oh! Oh! Fancy what the bees would do about that! It would be an uplifting experience, I am sure. Then, too, what if he should snore? Would that arouse the bees or would they but take it as an approaching rumble of thunder?

What effect has sound upon bees? Has anyone ever tried to find out? We read of firing guns, and beating tin pans, in olden times, to bring a swarm to the ground but what effect has sound upon bees in general?

There may be a way to induce the worst run-away-minded swarm to go quietly and peaceably into the waiting hive, without fuss or bother. Music may do the trick. It makes cows "give down" better and more quickly—so they say—and what may it not do for bees! Perhaps by perching upon a hive, while a swarm circles wildly over head, whistling or playing upon a flute such a selection as "Yankee Doodle," or "The Old Apple Tree in the Orchard," one might induce said swarm to go no further a-field. Say! I may have had a brain storm, or has one of those supercilious males thought this big idea out before me?

We know the effect of the noise made in swarming upon the entire yard. I know, too, that the children can mimic the noise made by heel or "warble" flies, and make a whole flock of cows hoist their tails over their backs and run like mad. Why, then, will it not affect bees! We have people making small fortunes by mimicing animal noises. There should be a fortune for the one who finds the noise that will lure bees.

We used to think of "crooners" as those old negro mammies, singing or crooning lullabies. Then came the craze of radio "crooners." What is wanted right now is a bee "crooner," and why not! If one could but imitate a queen in distress, surely every worker bee would flock to her aid.

It doesn't look a bit like Christmas, this November 9, but that big day is drawing near, and may I wish everyone a Merry Christmas.—Spinster Jane.

XUM

A Confab

By the Editors

More About Wintered-Over Colonies vs. Package Bees

Since the appearance of the October Confab in which Jack Deyell gave his views on the above topic we received a letter from a prominent beekeeper west of the Rocky Mountains who takes exception to some of Deyell's statements but does not wish to have his name appear in Confab.

Among other things this beekeeper says that Deyell's estimate of the amount of honey consumed, viz., 8 to 10 pounds per colony, in a bee cellar is much too low for the majority of localities, also that he has known of beekeepers who have attempted to winter single-story colonies in cellars in Wyoming who have had many colonies starve to death. Also whole cellars of bees in that region have suffocated during certain seasons, when, because of unseasonable changes in temperature in early spring, bees became active and left their hives before they could be removed from cellars. This beekeeper says that there are places in the Rocky Mountain region and Canada where it is impossible to winter in cellars and where the winter loss in outdoor wintering is so heavy that producers find that they are money ahead to kill their colonies and re-establish them in the spring with package bees.

We are glad this anonymous western beekeeper raised the foregoing questions or objections concerning the statements made by Jack Deyell and we are now giving Mr. Deyell the opportunity of answering the objections.

Deyell Attempts to Clarify Previous Statements

When I saw my statements concerning "Over-Wintered Colonies vs. Package Bees," page 645, October, 1938, Gleanings, in print I felt reasonably sure they would bring comments from those who would disagree with what I said. As a matter of fact, I should have been more specific in what I attempted to say. And so, I am glad to have this opportunity to rectify, if possible, the impressions my statements made, also to clarify my views on this topic

First of all, I would like to have it understood that I am for the package-bee method of developing colonies of bees. The package-bee business certainly has a place in our industry; in fact, package bees have been a life-saver to many beekeepers during the past few decades. Packages are needed to strengthen weak colonies, to start new colonies and to make up winter losses.

Referring to my statement regarding consumption of stores by cellar-wintered colonies, I should have been more specific by basing my statement on experiments conducted. On looking up records of experiments made here in Medina during two winters I find the average per colony consumption of honey in our bee cellar was about 12 pounds while the average for outdoor wintered colonies in double-walled hives was about 18 pounds.

The results of our experiments appear to be in line with those obtained by H. F. Wilson and V. G. Milum of the University of Wisconsin, as reported on page 38 of Wisconsin Research Bulletin 75, issued February 1927, where cellar colonies consumed about 11 pounds and colonies outdoors in double-walled hives consumed 22 pounds. It is interesting to note, however, that C. H. Pease of Connecticut in an article appearing in the November 1936, Gleanings, page 655, states that his approximately 50 colonies for 14 years consumed an average of between seven and eight pounds each while in the cellar.

Now the obvious danger of giving out such information as this is that some beekeepers will scrimp on winter stores. While colonies under normal conditions may not consume a large quantity of honey during winter, they do need an abundance of stores in early spring for brood rearing.

When our anonymous beekeeper mentions whole cellars of bees suffocating, this certainly must have been due to improperly constructed cellars or poor stores. The ceiling of a bee cellar should be below the frost line and adequate ventilation must be provided, for successful wintering. Also, winter stores must be of good quality.

The October 1938, American Bee Journal carries an article, page 450, entitled, "An Inexpensive Cellar for the North," describing a type of cellar which is now in use quite gener-

ally among commercial beekeepers and has proven satisfactory in North Dakota and other northern states.

Jack Deyell,
Medina, Ohio

Top vs. Bottom Entrances—Again

In November Confab this topic was discussed pro and con. While attending a bee meeting in Uhrichsville, Ohio, the other evening the Editor met a beekeeper who told of a local manufacturer of bee supplies who made hives with middle top entrances about fifty years ago. If we mistake not, the late J. E. Crane of Middlebury, Vt., used the middle-top entrance successfully for many years.

Fifteen years ago we tested out the middle entrance by wintering 100 colonies in single story Buckeye hives. The bottom entrances were closed entirely. A ⅝" auger hole or tube entrance was put about five inches above the bottom of each hive. The colonies wintered perfectly.

In November Confab J. F. Norgren of South Dakota presented some problems for the consideration of Frank Labus of Ohio and other skeptics who do not believe in top entrances. Apparently Mr. Labus is not yet convinced as to the soundness of Mr. Norgren's arguments favoring the top entrance, as will be seen from the following from Mr. Labus:

In the November Gleanings I note with interest that the subject of top winter entrances is again being brought up and that Mr. J. F. Norgren of Junius, South Dakota, does not agree with what I have said against their use. In reply I wish to state that I am in no way skeptical about a way to winter bees in my location and while I will not say that colonies cannot be wintered with a small top entrance I still insist that the proposition is wrong. If moisture is what you wish to eradicate, packing will not answer. The more packing used the more top entrances you will need to carry off the moisture. We know that we cannot release moisture without heat going out with it and that two entrances like top and bottom used together must cause draught to some extent. We know that both heat loss and draught are detrimental to bees. The best cure for any such condition is to prevent the source of moisture. This can be done successfully with one bottom entrance, no packings or wrappings and 100% protection from winter winds by windbreaks.

My idea of successful wintering is more inside protection, such as a good queen not older than 2 years, ber, and in the shallow super or plenty of stores in the lower chamfood chamber above, wind protection, moderate sized bottom entrances, hives banked at the bottom, etc. In the natural state of their environment bees insist on one entrance mostly midway or at the bottom of their combs and no one must think that Mother Nature was in any way mistaken in her wisdom of imbedding sound successful impulses, ways, and means into the beings ruled by her. I do not want anyone to think that I am an authority on any part of bee culture, but I do have a good past record on wintering successfully during even difficult winters. If you have good results, Mr. Norgren, with top entrances you should continue their use.

If moisture must be released by a top hole I would advise the method as described by Mr. Grant D. Morse of Saugerties, N. Y., in the November 1938 issue of Confab.

Taking up the latter part of Mr. Norgren's article, "Scientific Reason for Top Entrance," there is very little if any comparison between a dwelling house or a baby or an adult wrapped in blankets during winter and a colony of bees. The closest we can come in this respect is a church or theatre being tenanted with a large number of people. Even then the comparison is in no way equal to a colony of bees. Mr. Norgren, it is very easy to keep a child too warm inside a house and I may also say that houses are as a rule kept too warm. The increasing number of colds warrant my statements.

Mr. Norgren has not stated how the lone top entrance aids the colony in carrying the dead bees and other refuse from the hive floors during winter flights and whether or not bees like to breathe foul air arising from accumulated dead that have piled up on the hive floor and between the bottoms of the combs. He has given no sound argument in favor of a single top entrance.

Frank Labus,
Minerva, O.

While we are not in agreement with all of the statements made thus far by the different contributors on the subject of hive entrances we are reserving our comments until more beekeepers have had an opportunity to express their views.

XUM

Asked and Answered

Extracting Honey Late in the Season

Question.—In this locality we had a late honey flow from aster during October. The brood-chambers are filled up and we have about 1000 pounds of surplus honey in combs that should be extracted. Is it too late to extract?—W. L. Shaver, Ind.

Answer.—You can extract honey, even during the winter months if you heat your extracting house to 75 or 80° F. A good oil stove may be used to heat your extracting house if it is not large. It is well to stagger the supers containing the combs to be extracted so that the heat may more easily come in contact with them. It will take a few days for the honey in the combs to become warmed sufficiently to be extracted easily.

Wintering a Diseased Colony

Question.—When examining my colonies during late October I found one very strong colony with two cells of AFB. Would it pay to winter this colony with the idea of treating it next spring, or should I destroy it now?—A. W. White, Ohio.

Answer.—By all means destroy the colony right away. Burn the contents of the hive in a deep pit and cover the ashes thoroughly. Scorch out the inside of the hive (if the hive is worth saving) to make it safe for future use. This procedure may appear to some to be rather drastic, but in the end it is the safest and most economical method of dealing with AFB. If all diseased colonies were properly disposed of the day disease was found the disease problem would be much nearer a solution than at present.

Races and Strains of Bees

Question.—Is there more than one breed of Italian bees? If so, why is there only one breed of Caucasians, and one of Carniolans? Is it not a fact that the so-called goldens and bright three-banded Italians are hybrids, colored up with Cyprians by our early-day queen breeders?—J. F. Diemer, Missouri.

Answer.—There are several strains of Italians. One is bred in northern Italy, is very gentle, and the kind we prefer. Another strain from southern Italy is brighter yellow and crosser. There is still another strain from the Island of Sicily, which is much crosser. There are two or three strains of Italians in the United States. We would consider the goldens a different strain from the darker Italians. Some beekeepers believe that the bees we call "American Italians" are superior to any other race or strain, whether in Europe or in America. There are two different strains of Caucasians; one which is quite gentle, and the other quite the reverse. There are two strains of Carniolans, one that is quite yellow and one that is black. Some goldens and light three-banded Italians may or may not be hybrids. In some cases the bright color comes from Cyprian blood, which is a different strain of bees altogether. Caucasians raised on the plains are rather cross, says Phillips, while Caucasians raised in the mountains are gentle. The same is true of Italians. A strain of Italians raised in the Alps of northern Italy is gentler and much better, in our opinion, than the bees of southern Italy or the average Italians in America.

How to Render Old Combs in a Small Way.

Question.—I have a small accumulation of old combs with patches of drone cells. How can I render them into wax?—J. R. Wilson, Ill.

Answer.—You can melt up the combs by putting them into a bag, then placing the bag in a wash boiler or metal tub of water placed over a gas hot plate or stove, heating the water until the combs are melted. The bag of combs should be weighted down to the bottom of the tub. The melted wax will rise to the surface of the water and most of the refuse is retained in the bag. When the water cools the hardened wax may be lifted off the surface of the water. This method does not get all of the wax out of the cocoons of old brood combs. A wax press will do a thorough job.

Double Brood-Chamber for Florida

Question.—Our gallberry comes on about the first of April and lasts until about the first of May, meets our palmetto, which in turn lasts until about the first of June. I am going to use a full-depth hive body for a food-chamber. Now, what I want to know is, would it be better to let the queen have the run of both hive bodies or confine her to the lower hive body at the beginning of the palmetto the first of June, or keep her confined in the lower hive body from the start of the first nectar flow?—Harry T. Malone, Florida.

Answer.—Here in northern Ohio when we first began using the food-chamber hive, we allowed each queen access to the combs in the brood-chamber and the food-chamber during the spring months or up to the main flow. At the beginning of the main flow we put the queen down into the lower brood chamber under a queen excluder and put the food-chamber over the queen excluder. During the past four or five years we have been permitting each queen to have ac-

cess to the bottom brood-chamber hive during the entire year. Generally speaking, this system is very satisfactory because it simplifies manipulations and the queen has a wider range for egg laying, and this tends to reduce swarming. We suggest that you try both systems in your apiary, that is, letting each queen have access to both the supers, or a double brood-chamber throughout the season, also on some colonies that you confine the queen to a single brood-chamber during the major flow. We believe that the double-brood-chamber plan would be suitable for your locality.

Honey for Automobile Radiators

Question.—Can you give me the formula for using honey in an automobile radiator to prevent freezing?—Edwin Underwood, Montana.

Answer.—You can make a good automobile anti-freeze mixture by using the following formula: One-third water, one-third honey, and one-third alcohol by volume. You should see that the ingredients are thoroughly mixed by the use of heat before the mixture is put into the machine. It is very important that all water connections be made absolutely tight, because if this mixture containing honey leaks and gets over into the automobile, you will be sorry that you ever used honey as an anti-freeze agent.

Do Bees Carry Fire Blight?

Question.—I keep colonies of bees for the purpose of pollination, move the bees out to the orchard for a period of, say, 30 days, when they are brought home again. Owing to an outbreak of fire blight in this district, it is possible some action may be taken by the authorities. As very little information is available on the subject here, I would appreciate any information you may be able to give.—Roy Miller, New Zealand.

Answer.—It has also been claimed in this country that the honeybee is responsible for the spread of fire blight. Evidence obtained from experiments shows that honeybees are not responsible for the dissemination of the primary inoculum from the hold-over cankers to the blossoms and that other sources must be attributed to the spread of the organism. In 1931, a writer caused a great deal of dissension among beekeepers and fruit growers when he published a paper stating that infected bee hives were responsible for at least a part of the current season's fire blight. Pierstorff, of Ohio State University, among the leading authorities on fire blight, has conducted extensive experiments on this pertinent question. The results of his studies are most significant. He demonstrated that it was absolutely impossible for bees to carry fire blight from the hive to the blossoms even though the bee hives have been heavily infested with virulent cultures of the fire blight organism. Furthermore, he was unable to recover the fireblight organism from the frames, comb, or honey, twenty-four hours after the hives had been heavily inoculated with a virulent suspension of the organism.

Moving Bees Short Distance

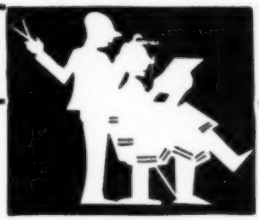
Question.—I want to move my apiary of 25 colonies about 200 yards from its present location. In my locality we seldom have a week during the winter that the bees do not fly some. As a rule, they are seldom held in more than three or four days because of cold. When would it be wise to move them this short distance? By such a short move would not the colonies become weakened by returning to the old stand?—D. W. Lockey, North Carolina.

Answer.—It would be feasible for you to move your hives of bees any time during the next two months, even though bees in your vicinity fly every three or four days. So long as you leave nothing in the way of empty hives on the old location, the old bees that might return from the new location to the old location would have no hives to enter and would doubtless return to the new location. A few years ago we moved a large apiary in the spring of the year, a short distance. Many of the old bees returned to the old location after being moved to the new location, but not finding any hives to go into, they soon returned to the new location. If you will do your moving rather late in the evening so that the bees, after being placed on their new location, may have a chance to settle down during the night. They will then work out of their hives gradually the following morning and will doubtless mark their new location.

Do Bees Fly in a Straight Line?

Question.—Mr. Allen Latham, writing in the Harvard Alumni Bulletin of February 11, 1938, states that bees do not travel in a straight line but follow the line of least resistance. This statement seems to upset the well-known saying, and he is the only authority that I have ever heard make this statement. The editor's note on Mr. Latham's article states that Mr. Latham has kept bees for 55 years. I would like to have an expression from some other observers as to the correctness of this statement.—W. F. Ficklen, West Virginia.

Answer.—Allen Latham is right. Bees do not travel in an exactly straight line when there are obstructions in the way, and they will therefore follow the line of least resistance, even though it may be in a semi-circle. The reason bees go around an obstruction is because the lower air currents are not as strong as those up above trees, or high in the air. As a rule, bees fly as close to the ground as possible, especially if there is a wind. Again, when there are obstructions in the way, the bees travel in rather a zigzag line, but the general direction is toward their home.

Just  News

A new bee journal has been started in Michigan, under the title, "The Michigan Beekeeper". It is edited by Elmer Carroll, Boyne City, Michigan. It contains sixteen pages, and as its name indicates, is confined largely to the doings of Michigan beekeepers, but much that it contains will be valuable to beekeepers of other states. The subscription price is 50c a year. The journal was first put out as a quarterly, but according to the November number, unpredicted response encouraged the promoters to publish it every other month. It should be remembered that Michigan represents one of the best honey producing sections in the whole United States. For actual production, in quality and quantity, no other state is ahead of it in the general average.

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There has just come off the press a 200-page book, "Further Upward in Rural India," by D. Spencer Hatch, who, for a number of years has been carrying on a splendid piece of work in Rural Reconstruction in India, under the auspices of the Y. M. C. A. The chapter, "Changing the Mind of the Indian Bee," is of special interest to beekeepers and shows what is being done with the native India bee, *Apis indica*.

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The Control Committee of the Bee Marketing Agreement and Order will have its first meeting at the Roosevelt Hotel in New Orleans, on Sunday afternoon, December 4. Further meetings of the Control Committee will be arranged at that time.—J. M. Robinson.

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The Beekeepers' Short Course and the Annual Winter Meeting of the Ohio Beekeepers' Association is scheduled January 31, February 1 and 2 of Farmers' Week at the Ohio State University. Extensive plans are being made for the educational program.

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A short course in beekeeping is offered at the University of Manitoba, Winnipeg, January 16 to 27, 1939. The lecturers are A. V. Mitchener, Prof. of Entomology, and L. T. Floyd, Provincial Apiarist. Eight other speakers from the University departments will lecture to students on subjects of interest to beekeepers. During the last week of the course members of the Manitoba Beekeepers' Association will meet for two days in their annual convention.

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The Annual Meeting of the Minnesota Beekeepers' Association will be held December 6 and 7 at the Curtis Hotel, Minneapolis. A cordial invitation is extended to all.

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Beekeepers of Oklahoma met at Muskogee, Oklahoma, October 5th, and organized a State Beekeepers' Association. Mr. D. W. Darrow of Muskogee was elected President; Mr. Edwin A. Smith, Woodward, Vice-President; S. E. Hale, Muskogee, Treasurer; and J. M. Goin, Secretary, the Chief Bee Inspector for Oklahoma. The meeting was well attended from all sections of the State and there was a great amount of interest manifested. The Association is busy organizing local associations which are to be affiliated with the State Association. The Association plans to ask the next session of the Legislature to amend existing State laws in order to clarify present laws and facilitate inspection of bees for the control of disease.

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A list of dealers in bee supplies, honey packing equipment, package bees, nuclei, and queens is compiled once a year by the Bee Culture Laboratory of the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture. This list is sent to correspondents who wish to purchase bee supplies, etc. The list is now being revised and those who desire to be listed again, or who wish to be entered for the first time, should send the following information to the Bee Culture Laboratory, National Agricultural Research Center, Beltsville, Maryland: 1. Name and address. 2. Dealer in: (1) Bees and queens—state race. (2) Package bees—state type and race. (3) Bee Supplies. (4) Honey packing equipment. The list will be closed to entries January 15, 1939.—Jas. I. Hambleton in Charge, Division of Bee Culture.

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An association known as the Portland Beekeepers' Association has been formed. It is a branch of the Oregon State Beekeepers' Association and its members will be drawn from Portland and the surrounding district. The officers for the

(Continued on page 781)

Buy and Sell Here
CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 15th of month preceding.

HONEY FOR SALE

COMB HONEY. Ida Guhl, Napoleon, Ohio, Rt. 2.

HONEY in new sixties. Walter Rink, Port Hope, Michigan.

CLOVER COMB also extracted in sixties. C. Holm, Genoa, Ill.

FINEST CLOVER, 6½c. J. L. Leonard, Scottsville, N. Y.

CHOICE CLOVER honey in 60's, 6½c. John Bour, Tiffin, Ohio.

HONEY—Clover and buckwheat, extracted. Geo. Sowarby, Cato, N. Y.

CLOVER HONEY for sale. Write for prices. Henry Price, Elizabeth, Ill.

HONEY in 50-gal. barrels. Sample, 10c. E. F. Hancock, Ft. Pierce, Fla.

FANCY clover honey, case or quantity. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

BUCKWHEAT honey in 60's at 5c lb. Hoffman's Honey Farm, Scotia, N. Y.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

FINEST clover extracted by case or ton lots. Jones Apiaries, Sauquoit, N. Y.

BASSWOOD HONEY—60-lb. cans, $6.00. Adams & Myers, Ransomville, N. Y.

AMBER HONEY—5c per pound in case lots. Kenneth Gallant, Jordan, N. Y.

NORTHERN Michigan white honey, case or carload. C. J. Freeman, Mesick, Mich.

CHOICE clover honey in 60's. Frank Bornhoffer. Mt. Washington, Cincinnati, Ohio.

DELICIOUS clover honey. Scribner Hill Apiaries, Ionia, N. Y. All standard packs.

CLOVER comb and extracted. Quotations on request. Howard Grimble, Holcomb, N. Y.

LIGHT clover honey—finest quality, in new sixties. Leland Farnsworth, Davison, Mich.

CHOICE white clover and light amber; also No. 1 comb. Lewis Klaty, Carsonville, Mich.

CHOICE CLOVER and light amber honey in 60's. The Hubbard Apiaries, Onsted, Mich.

HONEY all grades, extracted or comb, amber or white. F. J. Smith, Castalia, Ohio.

FOR SALE—Buckwheat honey in kegs and 60-lb. cans, 5c. Seward Van Auken, Duanesburg, N. Y.

STOLLER'S Unexcelled quality clover honey, 5's, 10's and 60's, finest obtainable. Prices on request. For satisfaction, write STOLLER APIARIES, Latty, O.

FINEST CLOVER extracted honey, 60-lb. cans, 7c per lb. Irvin Van Devier, Medina, O.

NEW CLOVER honey in 60-lb. cans, 6½c. None finer. Walters Apiaries, Burgoon, Ohio.

CHOICE BASSWOOD honey, 6c per pound. New cans and cases. Gelser Bros., Dalton, N. Y.

CHOICE clover honey, new 60's case, $7.20. Sample 10c. Owosso Dairy, Owosso, Mich.

MICHIGAN'S finest well-ripened white honey in new 60's. Jay Cowing, Jenison, Mich.

FOR SALE—Fancy Iowa white clover extracted honey. Kalona Honey Co., Kalona, Iowa.

NEW CROP buckwheat in 60's, 5c per lb. F.O.B. Roaring Branch, Pa. David Conn. Sample 15c.

ORANGE, palmetto and mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

DELICIOUS white clover, also light amber honey. Samples free. Henry Stewart, Prophetstown, Ill.

FANCY clover honey, in new 60's. Send for sample and price. A. A. French & Son. Theresa, N. Y.

CHOICE WHITE clover honey in 60, 10 and 5 lb. tins. Sample free. Harry T. Gable, Romulus, N. Y.

FINEST QUALITY clover honey in new 60's, 6½c lb. in cases of 120 lbs. S. E. Bailey, Hilliards, Ohio.

NEW CROP CLOVER extracted. Let me know the quantity you can use. Emery Horton, Holcomb, N. Y.

FINEST QUALITY clover honey. Also light amber. Case or carload. Don Barrett, Howell, Michigan.

BEST CLOVER in 60's, 7c, or if liquefied, 7½c Light amber, 6c and 6½c. E. S. Miller, Valparaiso, Indiana.

WHITE EXTRACTED honey in sixties, 7½c per pound. Sample, 20c. John Burghardt, Grand Island, Nebr.

A-1 WHITE CLOVER extracted honey in 60's. State your wants. Leonard S. Griggs, 711 Avon St., Flint, Mich.

FANCY TUPELO and light amber honey for sale, barrels and 60's. Marks Tupelo Honey Co., Apalachicola, Fla.

NEW YORK STATE finest clover honey in 60's and five-pound pails, Walter Severson, Box 825, Albany, N. Y.

BUCKWHEAT, 5½c; white clover, 6½c, by case or carload. Sample 20c coin. Otto Hurd, Phalanx Sta., O.

60,000 lbs. finest quality cloven honey, case lots 7c. Write for sample and prices on ton and car lots. Leroy C. Keet, Watertown, New York.

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We have a special proposition of interest to all dealers or to all beekeepers who wish to become dealers of Beekeepers' Supplies. Write for information. All goods are GUARANTEED SATISFACTORY.

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CHOICE new white clover honey in 60's and in 5 and 10 lb. pails. R. C. Bish, successor to Moore Apiaries, Tiffin, Ohio.

WE BUY AND SELL ALL KINDS COMB and extracted, carloads and less. H. Blitz, P. O. Box 3452, Philadelphia, Pa.

FINEST QUALITY white clover honey, $7.20 per case, 120 lbs. Sample, 10c. Arthur Thayer & Sons, Freeland, Mich.

HONEY FOR SALE—All kinds, any quantity. H & S Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

NEW CROP honey ready for sale. Comb honey, chunk and extracted. Write for prices, H. E. Crowther, Cass City, Mich.

WHITE CLOVER extracted, 6½c; amber, 5c; buckwheat, 5c; Fancy white comb, $3.50. A. J. Wilson, Hammond, N. Y.

FANCY white clover extracted honey. Case or carload. Price on request. Sample 15c. Jos. H. Hoehn & Sons, Ottoville, Ohio.

HILTNER'S QUALITY white clover honey from Northwestern Ohio. Case lots appreciated. Ray Hiltner, North Creek, Ohio.

HONEY—Fancy clover, in sixties, priced to resell at a profit. Reference First State Bank. E. M. Cole, Audubon, Iowa.

SUPERB quality clover honey at rock-bottom prices. Case or quantity. Inquiries invited. Scott's Honey Farm, La Grange, Ind.

WHITE CLOVER 7c, and buckwheat 5½c, in quantity lots, packed in new 60's. Finest quality. H. B. Gable, Romulus, N. Y.

SELECT LOTS—Extracted honey. Prices right. Write us about your needs. A. I. Root Co., 224 West Huron St., Chicago, Ills.

LET ME book your order for your season's needs of clover and buckwheat honey, 60's and 5's. C. J. Baldridge, Romulus, N. Y.

FINE HONEY, clover, clover-basswood and buckwheat in sixties, pails and jars, prices reasonable. Ray C. Wilcox, Odessa, N. Y.

WHOLESALE—Fancy comb, and Number 1 white, also extracted, white and amber. Prices reduced. N. B. Querin, Bellevue, O. R. 4.

CHOICE white sweet clover, also extra light amber honey in new 60-pound tins by the case or carload. Dadant & Sons, Hamilton, Illinois.

AMBER HONEY 2 60-lb. cans, $5.10. F.O.B. Dundee, N. Y. Write for price on buckwheat. Address Roscoe F. Wixson, Dundee, New York.

COMB, fancy clover $3.50; No. 1 clover $3.00; extracted in new 60's, clover, 7c; buckwheat, 5c a pound. Walter A. Wood, Naples, N. Y.

COMB No. 1, to fancy white, $3.50 per case, nice clover extracted in 60's, 7½c for price in fifty case or can lots. Write H. G. Quirin, Bellevue, Ohio.

CLOVER HONEY FROM CLOVERDALE. Ohio's finest clover extracted in 60's. Sample, 10c. Prices upon request. The Cloverdale Apiaries, Cloverdale, Ohio.

NORTHERN MICHIGAN fancy extracted honey, clover, milkweed, raspberry blend, as gathered by the bees. 60's at 6c per pound; 5-pound pails, $4.80 doz. Sample 10c. Lewis A. McIntire, Boyne City, Mich.

HEAVY FANCY white comb, $3.50 case; Fancy, $3.25; No. 1, $3. Fancy amber, $3. Fancy buckwheat, $2.75; No. 1, $2.50; White clover extracted, 7½c; amber, 7c; buckwheat, 5½c. C. B. Howard, Geneva, N. Y.

NO. 1 AND FANCY light comb honey, $3.00 and $3.25 per case. Extracted, 6c in 60's. H. R. Shelton, Parma, Mich.

WELL RIPENED clover in 5's and 60's; fine buckwheat in 5's, 60's, and 160 pound kegs. Sample 10c deducted from order. Coggshall & Son, Groton, N. Y.

QUALITY CLOVER honey, packed in all standard size tin and glass containers. Write for low prices. Earl Alexander, 2521 Fleming Road, Middletown, Ohio.

EXCELLENT QUALITY clover honey in new 60's, 7c; 5 and 10 lb. pails, 8c, in quantity. No. 1 comb, $3.50. Chmert Honey Company, Dubuque, Iowa.

ORANGE BLOSSOM, 9c; choice clover, 7c; light amber, 6c; buckwheat, 5c, in sixties. Sample 20c. Write for prices in pails. Windish Bros., White Pigeon, Mich.

MICHIGAN'S FINEST WHITE CLOVER honey 7c; by truckload, 6c. Buckwheat, 5c. New sixties. No disease. You will be pleased. John McColl, Tecumseh, Mich.

CLEAN well-ripened clover or buckwheat in 60, 5 and 2½ lb. tins, buckwheat also in kegs, case, or truckload. Sample, 10c. Earl Rulison, Route 1, Amsterdam, N. Y.

HOWDY'S HONEY: Fine quality white, clover, also buckwheat and light amber mixed extracted in new sixties. White, clover Honey Hunks. Howard Potter, Ithaca, Michigan.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

RASPBERRY HONEY blended with clover in new 60-lb. cans for 10 cts. a lb.; 5 or more cans, for 8 cts. a lb.; 10-lb. can by mail prepaid for $2.00. Sample by mail for 20 cts. Elmer Hutchinson & Son, Lake City, Mich.

FOR SALE—Fine clover honey, also fall flowers amber honey, in 60-pound cans. Prices and sample for the asking. Tons of each kind. Let us serve you. W. S. Earls, New Canton, Ills.

NEW CLOVER comb, extra nice 12 to 16 oz., mostly 15 oz. Very white, well capped. 24 sections, $3.00. Guaranteed to arrive in good condition by freight. Clarence Engle, Kearneysville, W. Va.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller.

WANTED—White clover honey. New cans only. Clover Blossom Honey Co., 712 Kossuth St., Columbus, O.

WANTED—Comb, chunk comb, white and light amber extracted honeys. Any amount. Central Ohio Apiaries, Millersport, Ohio.

WANTED—Carlots of honey, state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—White and amber extracted Honey, any quantity, also Beeswax. Write The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

CASH PAID FOR carloads and less than carloads of extracted honey. Send sample and best price. C. W. Aeppler Company, Oconomowoc, Wisconsin.

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ITALIAN QUEENS, carefully reared, high producing. European foulbrood resistant. New Jersey Experiment Station stock, 75c. Spicer stock, one dollar. Circular. E. G. Carr, Pennington, N. J.

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COMB HONEY 14-16 oz., packed, 12 very nice, $1.50 doz. Fairland Apiaries, 260 Park Dr., Dayton, O.

FOR SALE—60,000 pounds white to water white clover honey. Wesley Johnston, Port Hope, Michigan.

HONEY—32, 16, 8, 5 oz. jars; 2½, 5, 60 lb. cans. Comb honey. James Scarff, 210 Lincoln Ave., Syracuse, N. Y.

JUST NEWS

(Continued from page 776)

coming year are: Chas. H. Hays, President; H. J. Moulton, Vice President; Rachel Hartwig, Secretary-Treasurer.

• • •

Richard D. Barclay, Riverton, N. J., well-known beekeeper throughout the East, died suddenly Nov. 4. Mr. Barclay was president of the New Jersey Beekeepers' Association and also served on the State Board of Agriculture.

• • •

The Bronx County Beekeepers' Association will hold its Annual Christmas Party on Sunday, December 4, 1938 at 3:00 P. M., at the home of Gus Flother, 1369 Fulton Ave., Bronx, N. Y. Everyone attending brings a package not to exceed ten cents in cost, and everyone receives a package from Santa's bag. The Annual Social Gathering takes place on Saturday evening, December 10, 1938, at 8:00 P. M., in the club rooms of the Senator A. C., 2212 Haviland Ave., Bronx, N. Y.

• • •

A new book bearing the title, "History of American Beekeeping," by Frank C. Pellett, of the American Bee Journal, has just come from the Collegiate Press, Inc., Ames, Iowa. It contains 213 pages, well printed and illustrated. The price is $2.50, postpaid. Those who have long been connected with the industry of beekeeping and perhaps some of the newer recruits, will find this book, as has our Senior Editor, highly interesting as well as informative. Mr. Pellett, the author, has been very fair in his appraisement of the work of the old pioneers. It must have taken a vast deal of time to gather all the material and then sift out the really worth while history and present it in attractive form. The following table of contents by chapters shows the scope of the work:

Beginning of American Beekeeping; Langstroth's Invention of Bee Space; The Comb Honey Era; The Hive Controversy; Introduction of the Wax Moth; Smokers, Excluders, Etc.; Wax Foundation and Reinforced Combs; Importation of New Races of Bees; Invention of the Honey Extractor; Bees in California; Rise of Commercial Queen Raising; Search for Controlled Mating; Migratory Beekeeping; Beekeepers' Societies and the Convention Period; The American Bee Journal; Gleanings in Bee Culture; Other American Bee Periodicals; American Books on Bees; Pioneer Commercial Honey Producers; The Trade in Live Bees; Improving Bee Pasture; Sweet Clover and Specialization; Efforts Toward Disease Control; Beekeeping Memorials and Adulteration of Honey and Pure Food Legislation.

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Calvert, Alabama

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Merry Christmas
and a
Happy New Year
to all our
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ROSSMAN & LONG
P. O. Box 133,
Moultrie, Ga.

PHYSICAL AND CHEMICAL PROPERTIES OF HONEY

(Continued from page 749)

dinary floral honey, its importance as a constituent of honey is not very great.

The Minor Constituents of Honey

According to the analyses of American honeys as given by Browne, honey on the average contains approximately 77% of the three sugars, dextrose, levulose and sucrose, and 17.7% of water, leaving only about 5.3% for all the other constituents combined. From this it is apparent that the three sugars listed above constitute by far the larger proportion of the solid material of honey. These minor constituents, however, account to a very large extent for the individual character and behavior of the different floral types of honey.

In general the minor constituents of honey show very great variation in the proportions in which they occur in comparison with the sugars. For example, dextrins, mineral matter, protein content, pollen content, etc., all show wide fluctuations in their occurrence in honey.

(Continued on page 783)

LAST CALL!

Have you sent in your 1938 Institute Contribution?
December 31 brings the final opportunity to have your name included in the 1938 Membership Directory. We urge that you make sure your contribution reaches us by this date.
American Honey Institute must have **your individual** support and cooperation to serve you. The early 1939 program depends entirely upon the budget provided from the 1938 crop and made available by January 1. Won't you cooperate in helping to provide a greater advertising program for your product by sending in your contribution of $1 per ton or 3c per case NOW?

AMERICAN HONEY INSTITUTE
Madison Wisconsin

American Honey Institute
Madison, Wisconsin

My 1938 contribution of $..... is enclosed.

Name .....

City ..... State .....

Street or rural route .....

(Continued from page 782)

Apparently all types of honey contain more or less of a material referred to as "dextrin" which can be removed from honey by diluting the honey with water, and adding alcohol until these gummy materials are thrown out of solution. In physical appearance they resemble starch dextrins to a considerable extent but the analogy apparently ceases here, since chemically they appear to be quite different from starch dextrins. While positive identification of the nature and origin of these substances has not been made, the investigations that have been carried out indicate that chemically they are comparatively simple substances (of the order of complexity of a trisaccharide, such as melezitose), much less complex than the dextrins obtained from starch. The quantity found present in very light-colored honey is usually quite low, sometimes as little as ½ of 1%. This usually increases somewhat for darker-colored honeys, and in honeydew honey frequently runs over 10%. These substances exert a definite influence on the viscosity or "body" of honey, tending to increase it somewhat. This accounts for the sticky character of honeydew honey and for the fact that it appears more heavily bodied than floral honey of corresponding water content.

(To be continued)

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Jackson, Alabama

MACK'S QUEENS

They Speak for Themselves
HERMAN McCONNELL
(The Bee & Honey Man)
Robinson, Illinois

CHRISTMAS
GREETINGS

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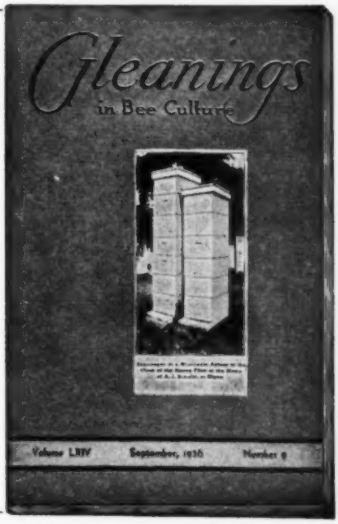
Medina, Ohio



Index to Gleanings in Bee Culture

Volume LXVI, 1938

In using this index the reader should not fail to note that it is divided into five departments, namely: General, Editorials, Contributors, Illustrations and Departments. The index of General includes everything except Editorials, Illustrations, Departments and Contributors.

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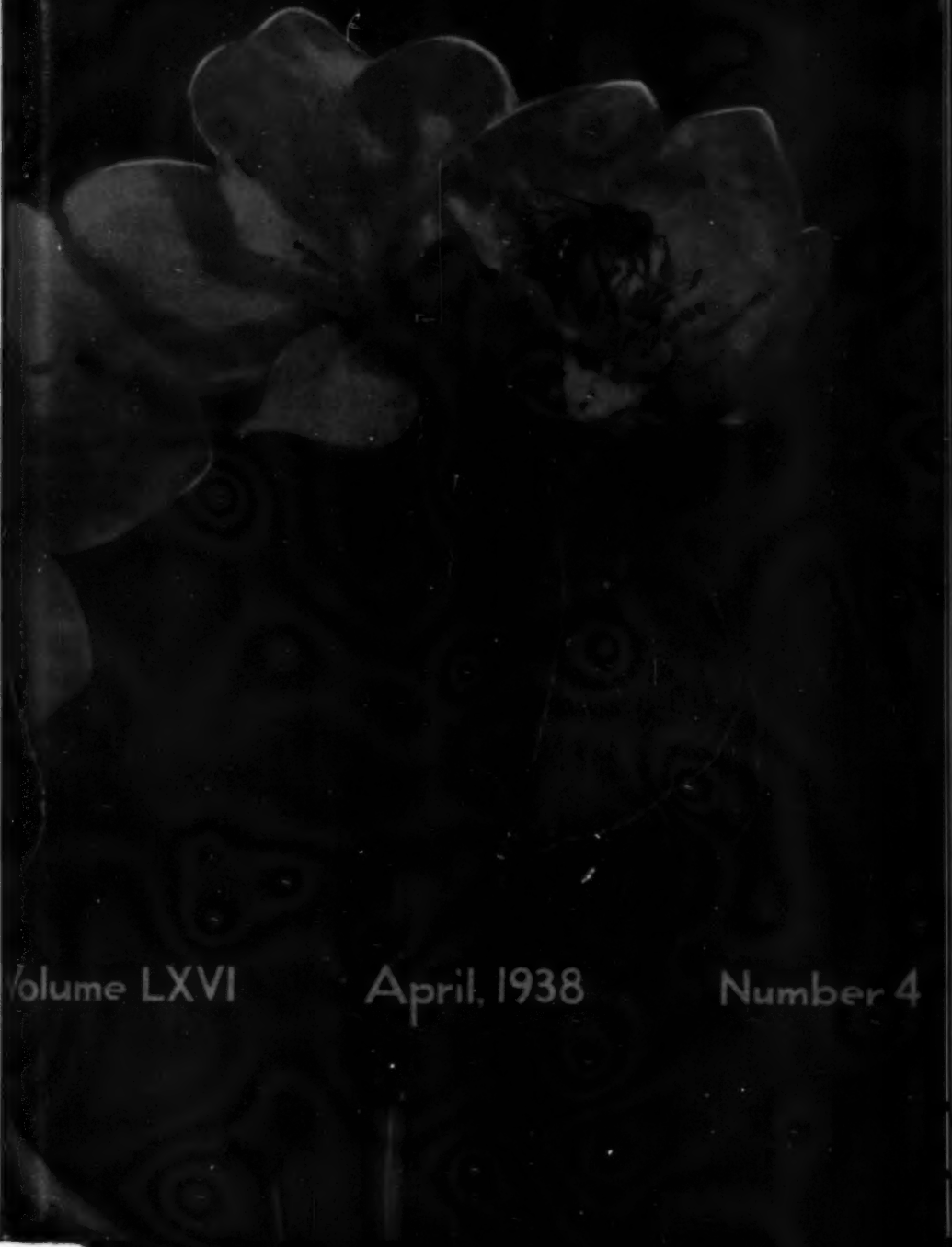

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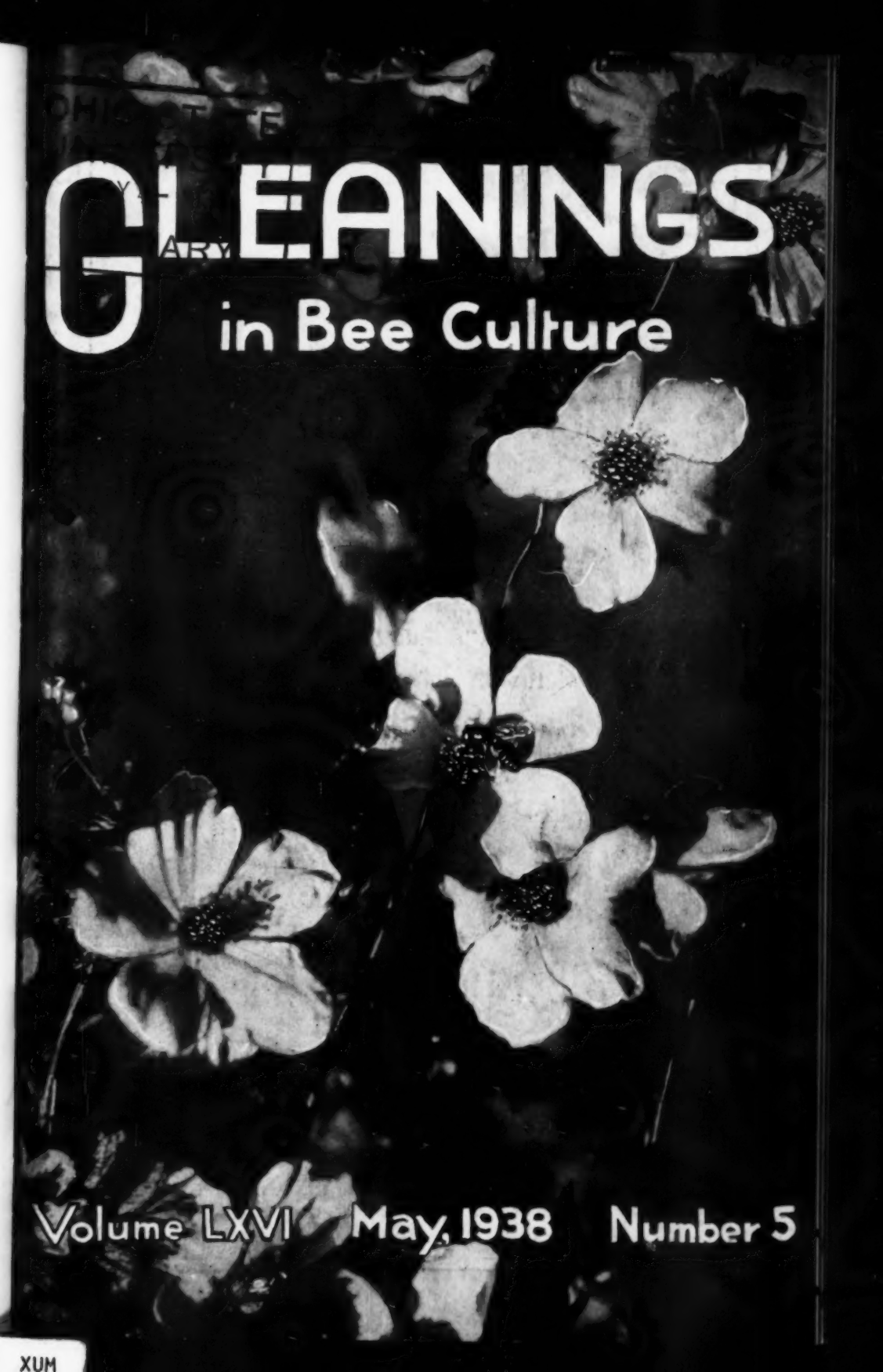
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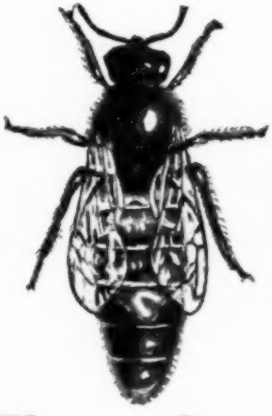

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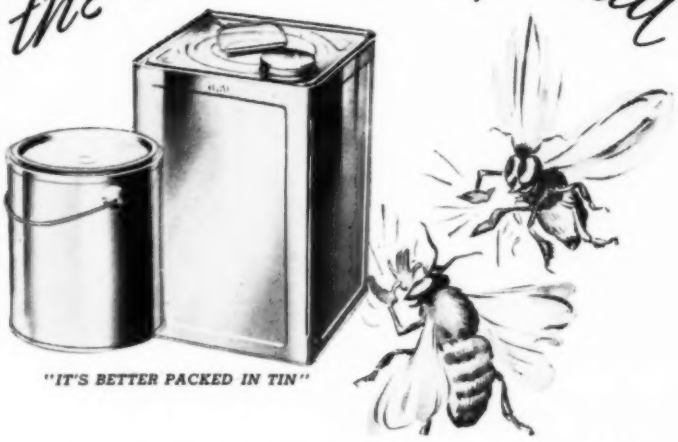

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GLEANINGS in Bee Culture

An Air-conditioned Home Located near Medina, Ohio

Volume LXVI September, 1938 Number 9

Honey Containers!

SOLDERED WITH VIRGIN TIN

All our tin containers in the three smaller sizes are this year soldered with virgin tin. In this way no honey can come into contact with lead, used in ordinary solder. Prices subject to change. If your order is for $50 at the prices shown, deduct 5%; if $100 deduct 10% in ordering tin and glass containers or both together.

	A	B	C	D	E
2½-lb. cans, 100 in ctn., wt. 31 lbs. . .	$4.10	$4.20	$4.10	$4.30	$4.30
5-lb. pails, 50 in ctn., wt. 27 lbs.	3.20	3.25	3.25	3.25	3.25
10-lb. pails, 50 in ctn., wt. 45 lbs. . . .	4.70	4.90	4.75	4.90	4.90
5-gal. cans, 16 in ctn., wt. 54 lbs.* . . .	5.10	5.20	5.10	5.25	5.25
Write for prices in carloads					
½-lb. jars, 24 in ctn., wt. 12 lbs.	.68	.75	.68	.69	.69
1-lb. jars, 24 in ctn., wt. 21 lbs.	.85	.98	.90	.93	.93
2-lb. jars, 12 in ctn., wt. 17 lbs.	.63	.65	.63	.65	.65
3-lb. jars, 12 in ctn., wt. 21 lbs.	.68	.70	.69	.70	.70

*Can only be shipped 16/c.

WINDOW CARTONS

These beautiful pink and green cartons with a large cellophane window show up section honey to the best sales advantage. The color combination blends wonderfully with the white comb surface and the large window shows an enticing area of honey comb to the buyer. Flowered around the edges with clover blossoms and completely enclosing the section, these cartons surely help sell honey for more money.

644—4¼"x1⅞" Beeway
645—4¼"x1½" No B'way
646—4"x5"x1⅜" No B'way

100, $1.20; 500, $5.50; 1,000, $10,00.

Weight 6½ lbs. per 100; 55 lbs. per 1,000. Postage ex.

REVELATION COMB HONEY WRAPPERS

	100	500
649—colored 4¼	$ .80	$3.65
664—plain 4¼	.55	2.50
658—colored Bag 4¼	.95	4.05
430—Bag filler device, wt. 2 lbs. ea.		.50

Above postage extra. Wt. 100, 1 lb.; 500, 5 lbs.

Write Lynchburg for prices on all cellophane plain wrappers.

A—F.O.B. Watertown, Wis.
B—F.O.B. Sioux City, Iowa.
C—F.O.B. Springfield, O.
D—F.O.B. Lynchburg, Vir.
E—F.O.B. Albany, N. Y.

Ask for our general catalog too if you wish items other than those listed here.

G. B. LEWIS CO., Watertown, Wis.

BRANCHES: COLONIE & MONTGOMERY STS., ALBANY, N. Y.; 1117 JEFFERSON ST., LYNCHBURG, VIRGINIA; 110 W. MAIN STREET, SPRINGFIELD, OHIO; 11 W. THIRD STREET, SIOUX CITY, IOWA.

Send your order to our office nearest to you.

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GLEANINGS in Bee Culture

The passing of the storm—Photo by G. A. Pauli.

Volume LXVI October, 1938 Number 10

XUM

Stamp of Approval

Storekeepers and Beekeepers

Proclaim the Root's new SHIPPING and DISPLAY case for comb honey to be the ideal SALES HELP.

Beautifully printed in two colors, bright yellow and deep brown on a green corrugated board. Cases are made from 175-pound stock and furnished with inner-liners with top and bottom pads. This display case is also a shipping case.

DISPLAY AND SHIPPING CASES

Shipped from Medina only.

To hold 24 sections

10, $1.80; 20, $3.20; 50, $7.50.

To hold 12 sections

10, $1.25; 20, $2.30; 50, $5.25.

F.O.B. Medina. 10, Wt. 30 lbs.

(To display honey, simply raise top and pull out inner top-covering and turn sides up so they rest against back to form a shelf. Extra honey can be left in case.)

Shipping Cases →

for 4 1/4 x 1 7/8 sections

10 for $1.85

Root QUALITY

The A. I. Root Co., Medina, O.

Contest Not Necessary

To secure complimentary letters for the outstanding line of Root Quality bee supplies. Every day beekeepers from all parts of the United States and even foreign countries write to tell us the savings they have made by using Root Quality bee supplies.

Winners 1938 Contest

First Prize $100.00
Chas. J. Rost, Meriden, Conn.

Second Prize $50.00
Tenney H. Wheatley, Brooklyn, N. Y.

Third Prize $25.00
Wilburt C. Wahl, Clayton, N. Y.

Fourth Prize $5.00
Fred H. Boerner, Mount Carroll, Ill.

Fifth Prize $5.00
Anthony Wolf, Fayetteville, Ohio.

Sixth to Twentieth Prize $1.00 each

John G. Krasser, Connersville, Ind.

H. S. Rogers, Chicago, Ill.

Wm. D. Weis,, M. D., Munster, Ind.

Fayette Mullins, Verdonville, W. Va.

Dwight A. Daniels, Pioneer, Ohio.

Clarence W. Carroll, Rochester, N. Y.

J. W. Bogart, Elizabethton, Tenn.

Allen R. Broud, Wellington, Ohio.

G. F. Babcock, Clay City, Ill.

Sister Mary of the Resurrection, Port-of-Spain, Trinidad, B. W. I.

C. M. Isaacson, Middle River, Minn.

E. N. Weaver, McKean, Penn.

Clark Fulton, Arkansas City, Kans.

John D. Thomas, Charleston, W. Va.

Grady Blankenship, Beeville, Texas.

Read These

Letters sent in without any offer or request.

"I find your bee hives are better than any I have bought elsewhere. I have some of your hives I bought in New Orleans eight years ago and they have held their shape and look as good as the day I got them. I feel that I am wasting money when I buy any other kind."
Charlie A. Henderson, La.

"I am getting my supplies from your dealer in Canton. Bought a hive recently—had looked at one in a local cut-rate store—but what a difference for only 56c more!"
Wm. H. Horner, Ohio.

"Last year I bought 1 pound thin super foundation from your dealer, Hunt & Son of Lansing. He charged me 85c for it. I thought this high so this spring I ordered some from a cut-rate house for 61c, a 24c saving, but never again. It is soft, the cells are flat and too large and it tears just putting it in the frames. I figure I have lost a dollar in time and patience."
Gerald Ross Miller, Mich.

Save Money

Guaranteed Satisfaction

Get Our Prices on 1939 Requirements

The A. I. Root Co., Medina, O.

GLEANINGS
in Bee Culture

wishes you a

Merry

Christmas

Vol. LXVI No. 12

December, 1938

XUM

You Get Quality

at Surprisingly Low Prices

100 Shallow Supers

500 Hive Bodies

10,000 Standard Frames

500,000 Sections

We are receiving orders like the above from beekeepers who know true values---and can use bee supplies in quantities. They save money.

Get Our 1939 Prices

on your requirements

Root QUALITY Bee Supplies

The A. I. Root Co.

Medina, Ohio

Root QUALITY Bee Supplies